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June 22, 1961

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BUSINESS AND EFFECT OF PRICE INFLATION ON
ELECTRIC UTILITIES

Public Utilities and People - Inside the Customer By James W. Carpenter and Robert T. Livingston

A Roundup on Space Communications Activities By Herbert Bratter

State Utility Commissions Back Senate Bill to Amend Natural Gas Act

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Subscriptions: Address correspondence to Public UTILITIES FORTNIGHTLY, circulation department, 332 Pennsylvania Building, Washington 4, D. C. Allow one month for change of address.

Entered as second-class matter April 29, 1915, under the Act of March 3, 1879, at the Post Office at Baltimore, Md., December 31, 1936. Copyfighted, 1961, by Public Utilities Reports, Inc. Printed in U. S. A.

Single copies \$1.00. Annual subscription price (26 issues a year): United States and possessions, \$15.00; Pan American countries, \$15.00; Canada, \$16.00; all other countries, \$17.50.



Public Utilities

VOLUME 67

JUNE 22, 1961

NUMBER 13

909



ARTICLES

The Effect of Price Inflation on Electric Utilities

C. P. Guercken 881

Despite outstanding performance, electric utility companies have not been fully compensated.

Public Utilities and People—Inside the Customer

James W. Carpenter and Robert T. Livingston 899

The approach of public relations as considered from the standpoint of the utility customer.

A Roundup on Space Communications Activities

Herbert Bratter

"Fielding" a team of satellites for communication relay purposes.

FEATURE SECTIONS

Financial News and Comment Owen Ely 923
What Others Think 932

• Pages with the Editors . 6 • Utilities Calendar 13

• Remarkable Remarks .. 12 • Index to Advertisers .. 26

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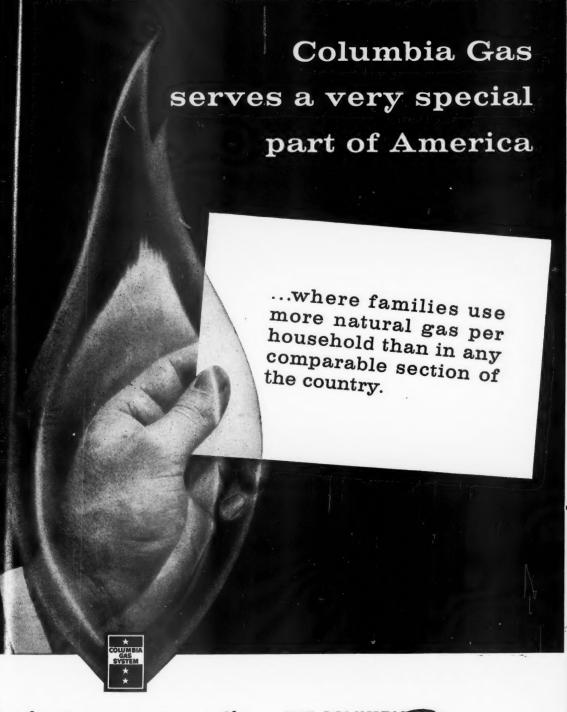
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Pages with the Editors

It is quite generally understood that regulation of public utilities has witnessed a shift in the emphasis of the forum, from the legislatures to the courts, and finally to the regulatory commissions, during the period of more than a half century of more active history of such regulation in the United States. But it is not so generally understood that the methods and techniques of regulation, and the specialists who are responsible for them, have greatly changed during the same period.

THIRTY years ago the fair value rule, stressing reproduction cost, was probably at its peak. The typical rate case was largely prepared and presented under the auspices of the appraisal engineer. Physical inspection, observed depreciation, nuts-and-bolts inventories were the accepted tools of the appraisal experts, stepped up or modified by sampling techniques and field survey averages. Then came changes. Twenty years ago, or less, it could have been fairly said that regulation had been turned over to the bookkeepers. The emphasis on strict cost accounting had given rise to widespread acceptance of the original cost rate base. The accountant became the principal figure in the regulatory setup, as far as



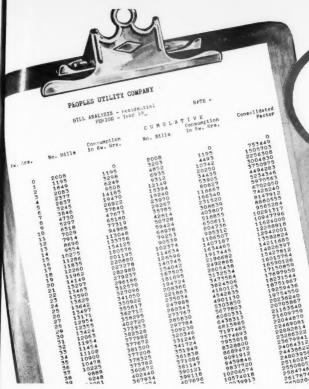
ROBERT T. LIVINGSTON

laying the foundation for the presentation of rate case evidence was concerned.

But in regulation, as in other fields of endeavor, time never stands still. Electronic computers and automatic techniques for casting and recasting costs and prices in terms of any index frame of reference make even the official uniform classification of accounting systems seem like static devices, to be used mainly as points of departure. There is no reason why a regulatory commission today, using modern tools of the trade, so to speak, cannot come up with up-to-date trended costs or trended fair value estimates just about as accurate and certainly as quickly as original cost statistics taken right out of the account ledgers. Neither the cost nor the value theories have any monopoly on the use of these excellent tools of the space age.

PERHAPS this is just as well, since it tends to restore the regulatory judgment to the place of primary responsibility, where it should have been all the time. The past history of attempts at automatic regulation, such as the old Washington Plan or sliding-scale, profit-sharing device, and the experience of the Federal Power Commission when it attempted to place sole reliance on the cost-of-money formula in determining the rate of return, points to the conclusion that there is no mechanical substitute for ultimate judgment in the regulatory field.

TECHNIQUES may change, but basic principles should not change any more than the Ten Commandments. The fundamental rule that a reasonable utility rate is one which will yield a fair return on the property used in the public service while at the same time assuring the customer of adequate and efficient service, is the same today as it was in the reconstruction days of the Granger Movement. The difference is that we have bet-



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ter and more precise tools; and the hopeful objective, of course, that we shall learn how to use them intelligently.

The long and sustained period of inflation which has been with us without interruption since the end of World War II is one of the reasons why utility regulation, as well as other lines of business, will need better and better tools for measuring their economic performance and the fairness and adequacy of costs and prices.

The opening article in this issue deals with the difficult problem of measuring the effect of price inflation on electric utilities. The view expressed in this contribution is to the effect that these utilities are not being fully compensated when their performances are measured in realistic terms. That is to say, when such performance is measured in terms of the constant purchasing power of a dollar, the phenomenon of economic depreciation for both rate and tax purposes, and the perennial argument about cost versus value in the rate base.

C. P. GUERCKEN, author of this article, is assistant to the vice president of Ebasco Services Incorporated. He is an electrical engineering graduate of New York University (BS, '31) who has also studied economics, accounting, and finance at the London School of Economics before joining the Edmundson's Electricity Corporation—then a subsidiary of



HERBERT BRATTER



C. P. GUERCKEN

Utilities Power & Light Company. After other utility experience in England, Mr. Guercken returned to the United States in 1940 to join Ebasco Services Incorporated as budget sponsor.

Also in this issue, beginning on page 899, is the second of a three-part series dealing with public utilities and the people. It comes to us from the joint authorship of James W. Carpenter, former vice president of Long Island Lighting Company, now retired, and Robert T. Livingston, professor of industrial and management engineering of Columbia University. Mr. Carpenter was born in Scranton, Pennsylvania, and educated at Pennsylvania State University (BS, '14; EE, '20).

His coauthor, Dr. Livingston, was born in Indianapolis, Indiana, in 1896 and graduated from Rensselaer Polytechnic Institute (ME, '17). After service as a naval Ensign in World War I, he became instructor and assistant professor at Columbia University where he is now professor in charge of the Columbia Utility Management Workshop.

THE next number of this magazine will be out July 6th.

The Editors



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JULY 6, 1961, ISSUE-

MEASURING PRICE-SUPPLY RELATIONSHIP FOR NATURAL GAS

The necessity for manufacturing corporations in pricing differentiated products, as is the case in the sale of natural gas, to undertake an estimate of demand at various price levels is the topic of this article by Theodore H. Levin and Dale Berman, both of Washington, D. C. They discuss the economic concept of elasticity of supply and demand, its application to the natural gas industry, and the need for companies to prepare a demand schedule, especially when public utilities must make assumptions of the relationship of price and demand when they submit revised rate schedules to regulatory agencies. Levin is currently associated with the Small Business Administration, while Berman is an economic statistician for H. Zinder & Associates.

THE GROWTH OF TELEPHONE "SALESMANSHIP"

The question of profitable salesmanship of telephone company services and products is discussed by James H. Collins. The veteran Washington business writer explains the difficulties telephone companies have encountered in establishing workable and effective "sales departments." He points out the recent establishment of these departments reflects a "new sales policy, or philosophy, or creed" in the industry. Mr. Collins explains how the modern telephone concern has gone about selling to its customers such diversified services as toll calls and colored phones.

COST OF DEBT FOR RATE OF RETURN

It has been found in a study on the practices of state utility regulatory commissions that a large percentage of the respondents using a cost-of-capital approach to an allowable return relied heavily on imbedded costs in determining the cost of debt capital. This survey is interpreted in this article by Robert G. Towers. Towers, associated with Martin Toscan Bennett Associates, Inc., explains the use of actual or imbedded cost of existing debt and its relation to interest, operating expenses, rate of return, and other factors.

CENTRALIZED PUNCHED CARD BILLING

The growing importance of getting a better job done in a less amount of time has motivated Consumers Power Company of Michigan to install a modern centralized punched card accounting system. The advantages in labor and time, both to the company and to its consumers, are discussed by J. P. Bromley, assistant controller for Consumers Power Company. The computer card system (or IBM, as it is commonly called) presently handles 70,000 meter-read cards and 55,000 bills each day for the company.

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J. Handley Wright
Vice president, Association of
American Railroads.

"I am annoyed occasionally with friends of mine who come back from abroad to tell me what an enjoyable trip they had on the Swiss railroads, or the French railroads, or the German or Japanese railroads. . . . With the exception of one railroad in the Dominion of Canada, the United States is the only spot left on earth where railroads are privately owned and operated. The French roads, German roads, Swiss roads, etc., are owned and operated by the governments of those countries who can and are pouring tax moneys into the upbuilding, strengthening, and modernization of their railroads. Here in the United States our railroads are built and operated by private capital, pay billions of dollars in taxes, and we are suffering manifestly from overregulation and competition which is financed in part by our own tax money."

Utilities Events Calendar

CHECK THESE DATES:

- June 22-23—Edison Electric Institute, Residential Electric Heating and Air Conditioning Committee, will hold meeting, Williamsburg, Va.
- June 23—Southern Gas Association will hold round-table conference on gas pipeline right of way, Oklahoma City, Okla.
- June 25-28—American Society of Agricultural Engineers will hold annual meeting, Ames, Iowa.
- June 25-28—North Central Electric Association will hold annual executive conference, Lake Okoboji, Iowa.
- June 25-29—Advertising Association of the West will hold annual convention, Seattle, Wash.
- June 25-29—National Advertising Agency Network will hold annual management conference, Colorado Springs, Colo.
- June 25-30—American Society for Testing Materials will hold annual meeting, Atlantic City, N. J.
- June 26-27—Michigan Gas Association will hold annual meeting, Mackinac Island, Mich.
- June 26-27—Pennsylvania Electric Association, Taxation Committee, will hold meeting, Pittsburgh, Pa.
- June 26-28—American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc., will hold annual meeting, Denver, Colo.
- June 26-28—Canadian Electrical Association will hold annual meeting, Banff, Alberta, Canada.
- June 26-28—National Convention on Military Electronics will be held, Washington, D. C.
- June 26-30—California Telephone Association will hold annual convention, Honolulu, Hawaii.

- June 26-30—Second Energy Institute will be held, American University, Washington, D. C.
- June 27—American Water Works Association, New Jersey Section, will hold meeting, Wayne, N. J.
- June 27-30—American Home Economics Association will hold annual convention, Cleveland, Ohio.
- June 28—Eighth International Gas Conference will be held, Stockholm, Sweden.
- June 28-30—Joint Automatic Control Conference will be held, University of Colorado, Boulder, Colo.
- June 28-30—National Rural Electric Cooperative Association, Board of Directors, will hold summer meeting, Washington, D. C.
- June 29-30—Pennsylvania Electric Association, Plant Accounting and Records Committee, will hold meeting, Allenbury, Pa.
- July 4-7—National Society of Professional Engineers will hold meeting, Seattle, Wash.
- July 10-12—National Association of Television and Radio Farm Directors will hold convention, Washington, D. C.
- July 14-15—Second Human Events Political Action Conference will be held, Washington, D. C.
- July 16-21—Conference on Electrical Techniques in Medicine and Biology will be held, New York, N. Y.
- July 17-21—Western Summer Radio-Television and Appliance Market will be held, San Francisco, Cal.
- July 25-Aug. 10—International Trade Fair will be held, Chicago, III.





Cannon? No, Gas Pipeline!

These huge pieces of pipe are being jockeyed into position by a workman as part of a \$14 million transmission expansion program of the New York State Natural Gas Corporation.

Public Utilities

FORTNIGHTLY

VOLUME 67

JUNE 22, 1961

NUMBER 13



The Effect of Price Inflation on Electric Utilities

The electric utilities have not fully compensated their owners when their performance is measured in realistic terms. This author considers that realistic measurement of such performance would entail consideration of the constant purchasing power of a dollar.

By C. P. GUERCKEN*

Foreword

THE problems of economic depreciation have recently been given considerable prominence in congressional hearings and also in meetings of the American Bar Association. The worsening competitive position of American industry, both at home and abroad, and the unrelenting pressure of inflation have focused the attention of all industry on the important need for an equitable solution to both the tax and book depreciation problems.

*Assistant to vice president, Ebasco Services Incorporated. For additional personal note, see "Pages with the Editors." The utility industry has long been keenly aware of regulatory disregard of the effects of economic depreciation. For regulated industry the mere granting of economic tax depreciation by itself would be worse than no solution at all. The industry, operating as it does under a cost-of-service concept, would then transfer all of such benefits to the customers. In fact, the perennial trend in the confiscation of property will turn into a case of galloping consumption unless concurrently the industry gets a statutory requirement to "book" economic depreciation if it is taken for tax purposes. Such practice

would be in line with Treasury rulings which were in effect during the early twenties.¹

The problems which have arisen under the provisions of §167 (liberalized depreciation) are still plaguing the industry at both federal and state commission levels. Not only have there been conflicts between the jurisdictions, but in addition state commissions which once permitted normalization have now required that the flow-through method be used. The threat is ever present that some commissions will make flow through mandatory along the lines of the Maine decision.2 Any further so-called liberalization, such as the use of the triple declining balance method, can only add to existing confusion and uncertainty.

The foregoing factors have made difficult, if not impossible, an intelligent appraisal of the financial condition of the industry. The answer therefore lies in the utility industry espousing the use of a present value rate base and economic depreciation, since this is based on a current economic reality and not on a highly controversial method of temporary tax relief.

The industry should press every opportunity to present its point of view before Congress and regulatory commissions on the co-ordination of state and federal regulation with respect to economic depreciation.

Electric Utility Industry's Position

THE private electric utilities in this country have grown faster in terms of physical capacity than any other major industry. Installed capacity increased at the rate of 4.75 per cent per annum com-

pounded from 1922 through 1948—growth having been held down by the great depression and then by World War II. However, from 1949 through 1959 it grew at the rate of 9.10 per cent, or at nearly double the earlier rate. There is nothing in the present economic picture to indicate any slackening in the rate of growth for the foreseeable future.

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Construction expenditures for the private segment of the industry are currently of the order of \$3.5 billion per annum. Estimates indicate that by 1975 these expenditures will be \$10.5-\$11 billion per annum, an amount not materially different from the total electric utility plant account in 1937.

In spite of the outstanding performance of the electric utility industry in serving the nation and in expectation of a seemingly limitless growth, the electric utilities have not fully compensated their owners when their performance is measured in realistic terms; namely, in dollars of constant purchasing power. In fact, the economic position of electric utilities has worsened during the 23-year period 1937 through 1959, here reviewed.

Two factors have contributed to this: First is the reluctance or inability of regulatory commissions to grant economic depreciation even in fair value jurisdictions. Second is the fact that the federal government has not allowed depreciation deductions for income tax purposes on anything except original cost. These two interrelated factors have taken a heavy toll of the financial and economic health of the industry.

The Need for a Fair Value Rate Base

To make a realistic summation of today's dollars and those previously

¹Letter of June 25, 1918, addressed by the commissioner to Internal Revenue agents.

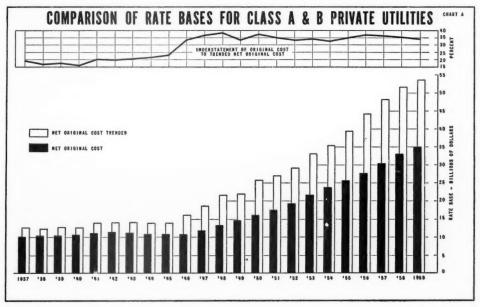
Re Central Maine Power Co. 21 PUR3d 337.

invested in utility plant, the greater purchasing power of the historic dollars must be expressed in terms of the purchasing power of today's dollar. This is proper because it is in current dollars that a utility pays all costs of operation, including depreciation, and it is in current dollars that investors measure return on both plant and equity. Unless like dollars are used for such measures, the utility industry will not recover the true cost of capital consumed in public service, the indicated return on capital will be overstated, and the so-called "informed investor" will receive as part of what he considers earned dividends a return of his investment on which government has collected a capital levy in addition to income taxes.

CHART A (this page) shows the relationship of the original cost rate base of the class A and B electric utilities and

the trended original cost rate base in terms of dollars of constant purchasing power.

o make a realistic appraisal of the current cost rate base, the total plant account of the class A and B utilities was repriced from 1937 through 1959 in terms of dollars of constant purchasing power. This was done by applying the Handy-Whitman Index of Public Utility Construction Costs for the North Central division (1911 = 100) to each year's gross additions to plant, and then correcting these annual additions by the use of appropriate mortality curves in order to obtain the surviving plant at the end of each year during this period. A reserve requirement method was used to obtain the net trended original cost of plant, and to it were added materials and supplies, plus forty-five days' operating expenses (exclusive of purchased power) for cash working capital.



JUNE 22, 1961

CHART A shows that the erosion of the rate base on which real earnings must be predicated has been tremendous. Of greater significance is the fact that over the years there has been no material lessening of the understatement of original cost rate base with respect to the trended original cost rate base.

Beginning with 1946 when the inflationary boom really got under way, and ending in 1959, the understatement of original cost rate base below that of trended original cost has not varied materially from a 35 per cent level. In other words, while plant account increased 3.3 times in this period, and while nearly \$35 billion of new construction was added to the electric plant account, the current value rate base is still 53 per cent over the net original cost rate base compared with 51 per cent in 1946. Clearly, therefore, the theory that the electric utility industry will achieve a fair value rate base if enough plant at current cost is installed is patently false. So long as prices keep edging upward, the addition of even material quantities of plant at today's prices will not lessen the disparity between fair value and orginal cost. The only way that the fair value rate base can be achieved is by commission action and by a restatement of the books of account.

To have earnings commensurate with such a restatement, in terms of operating revenues, the foregoing revaluation of the rate base would result in an increase of \$2.150 billion, or equivalent to 22.7 per cent of 1959 operating revenues, if the rate of return were to be the same percentage value as that shown for the original cost rate base. Considering the fact that during the period from 1937 to 1959 the Consumer Price Index went

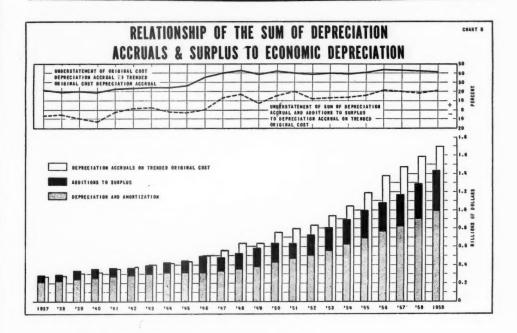
from 61.4 to 124.6, respectively (1947-49 = 100), or an increase of 103 per cent, the above adjustment to revenues can hardly be considered excessive.

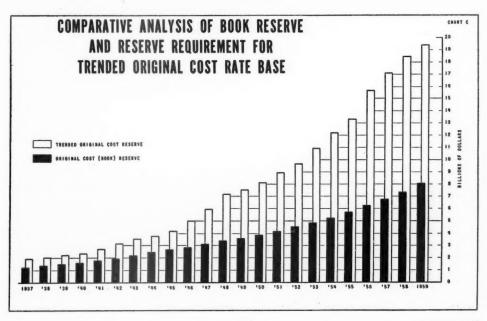
The Need for Economic Depreciation

CHART B (page 885) shows the relationship of original cost depreciation accruals to economic depreciation accruals required to recover property values inherent in the present value rate base mentioned above. Also shown is the relationship between original cost accruals plus additions to surplus and required accruals for economic depreciation.

The proper recovery of property values through charges to revenue is of crucial importance to the utility industry if the economic and financial stability of the electric utility industry is to be preserved. Original cost accounting has failed and will continue to fail in the recovery of such property values. The prewar years showed an understatement of original cost with respect to trended original cost of 20 per cent, but the understatement for the ten years ending in 1959 was over 40 per cent. In other words, in a period of the industry's greatest expansion, original cost depreciation accounting recovered only 60 per cent of the real loss in value of the property devoted to public service.

Economic depreciation is not designed to replace property, but to recover the current cost of property consumed in public service. Whether such property is replaced, abandoned, or superseded by better plant put in its place, economic depreciation is designed to keep the investor's equity intact. That is its sole purpose. If this is not accomplished,





property is confiscated without due process for the benefit of the ratepayers.

The foregoing analysis demonstrates, as in the case of the fair value rate base, that no amount of growth in inflated dollars will give the industry economic depreciation.

As to retained earnings, it is clear that they are now insufficient to make up the deficiency between economic depreciation and original cost depreciation. Up to 1946 the total of retained earnings plus original cost depreciation slightly exceeded economic depreciation. However, from 1947 through 1959 the picture has worsened progressively to the point where understatement of retained earnings plus depreciation has averaged 16 per cent below economic depreciation.

Some commissions have argued that however they may favor economic depreciation, the tax laws are such that every dollar of economic depreciation—i.e., that amount over original cost depreciation—would cost the ratepayer \$2.08. It is a little hard to say why such commissions should hide behind the imperfections of the tax laws and thus sacrifice the integrity of property which serves the common interest of both the ratepayer and the stockholder.

In 1959 the annual economic depreciation accrual was \$703 million greater than the annual original cost depreciation accrual. To recover this additional cost would require an increase of \$1.465 billion in operating revenues, equal to a 15.5 per cent increase in 1959 electric utility industry revenues. Considering the progress of inflation, this would seem to be a small adjustment to make even without the benefit of a corresponding income

tax deduction. Going one step farther, if the income tax depreciation deduction were also based on current value, the increase would amount to only 7.4 per cent.

The foregoing illustrates the effect of tax deductions. It is highly important that the utility industry persuade the government that economic depreciation for tax, book, and rate-making purposes is necessary for the perpetuation of a progressive, prosperous, private electric utility industry, a necessary component of our national economy.

The Book Reserve and the Erosion of Property

CHART C (page 885) shows the book reserve and the reserve requirement based on trended original cost. It will be seen from the relationship of the two trends that the financial position of the industry has materially worsened in the twenty-three years under review.

In 1937 the understatement of the original cost book reserve below the trended reserve amounted to \$0.673 billion, or 34.4 per cent. By 1959 this difference had risen to \$11.326 billion, or an understatement of 58.4 per cent. It is to this extent that over the years the rate-payers have failed to meet the true economic costs of service, and thus have been subsidized at the expense of the stockholder by not contributing sufficient revenue to maintain the integrity of property.

Under the current method of accounting, which results in major deficiencies in the annual depreciation accruals, a substantial amount of new capital being raised is not for the construction of new plant, but merely for the preservation of property value. Since 1937, 51 per cent

of the total new capital raised was used to replace property value consumed in public service. This function should have been performed by annual depreciation accruals, had they been based on current economic cost. To put this matter in a somewhat different context, it may be said that the book equity of \$17.8 billion at the end of 1959 made an involuntary contribution of \$11.4 billion, or 64 per cent of the total, to the mere maintenance of property value, and not to the expansion for which it was originally intended.

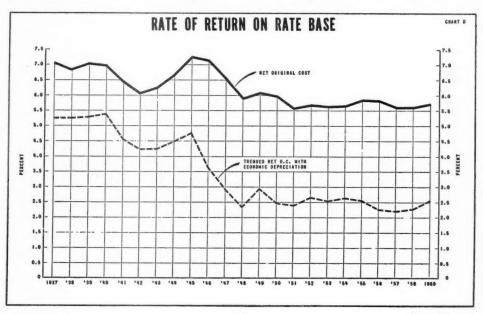
Rate of Return and Earnings

O^N Chart D (this page) are shown the rates of return on a net original cost rate base and the return on a present value rate base after economic depreciation.

It is only too obvious that the earning performance has been exceedingly poor even on an original cost rate base, and far worse when measured against present value.

In a period of the industry's greatest expansion and when the economy as a whole enjoyed unprecedented prosperity, the earnings of electric utilities as a whole were mediocre. Also, as Chart D shows, the long-term trend has been downward. Significantly, in the ten years ending in 1959 the return on net original cost in any one year never quite reached 6 per cent, while the arithmetic average was 5.72 per cent.

As to the return on current value rate base, it is clear that property is being confiscated because of both the stubborn refusal to recognize inflation and the failings of original cost accounting. It is significant that the difference in the rate of return percentages between original cost and present value, 1.60 per cent in



1940, had widened to 3.18 per cent in 1959. Furthermore, if real earnings of the order of 2.5 per cent persist for any length of time, the utility industry can look with confidence to joining the railroads and the urban transit systems in the financial discard.

Finally, if the return to the utilities were such as to permit earnings which not only covered a fair return on the present value rate base but also enabled them to cover economic depreciation, the needed increase in operating revenues in terms of the 1959 level would be of the order of \$3.61 billion, or 38.2 per cent. However, if the economic depreciation portion were allowed as an expense for tax purposes, then the increase would be 30.8 per cent.

The Problem of Regulation by Accounting

LIKE inflation itself, regulation by original cost accounting in times of inflation hits those least able to adjust property values and prices to sustain real earnings; namely, the regulated utilities. Most nonregulated industry has two advantages not possessed by utilities. These are: high ratio of capital turnover; and free market pricing. The two are interrelated and encompass all of the dynamics of present fair value.

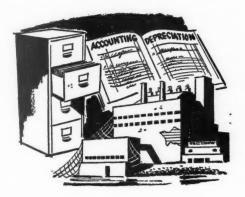
With rapid turnover of capital, asset values are closer to current values. Depreciation, both for book and tax purposes, approaches current or economic depreciation. Even in those nonregulated industries where turnover of capital is relatively slow, competitive market pricing is such that enough earnings are retained, along with the depreciation reserve, to keep the property whole. This

applies to the survivors. Others who did not keep their property whole went under or bowed out when they saw what was ahead.

In the regulated utility industry, price may not exceed cost computed under substantially rigid formulas. If economic depreciation were adopted for rate making, its allowance or disallowance for both book and tax purposes would in turn determine whether the customers or the owners would bear its cost. The crucial problem which the industry faces is that in rate making the accounting process is controlling. To that extent the question resolves itself into whether such accounting will be realistic in terms of dollars of constant purchasing power, or whether such accounting will be based on dollars of various values under the original cost concept.

The Need for Realistic Accounting

F economic depreciation is to be booked for both accounting and rate making, then to make the balance sheet consistent with the income statement it should also be revalued in terms of current dollars. Both logic and equity dictate that this step should be taken now, and not ten years hence, when the dollar may well be worth only 35 per cent or even 25 per cent of its 1940 value. At present, the balance sheet in no way reflects the current cost of plant or the book valuation of equity. It is merely a reflection of the net current asset position of a utility, which is pertinent in determining its immediate solvency or ability to carry on in the normal course of business without the handicaps of poor credit. However, the balance sheet of a utility would be of much greater value if, on a basis of rea-



sonable consistency, the plant account as well as its related reserve were shown at current cost.

Today's utility balance sheet is an agglomeration of dollars of different vintages and different purchasing powers. The property ownership characteristics of a utility's various stockholders are vastly different, depending on the time funds were committed to the enterprise. Adjustment of the depreciation reserve alone would be a helpful step, but it still will not result in a realistic valuation of net assets in the balance sheet. This limited adjustment has consisted of charging income and of crediting the current value portion of the annual depreciation accrual (without benefit of tax reduction) to appropriated surplus. However, it is difficult to see how a charge to income can become part of the stockholder's equity. Nobody has so far suggested that the original cost depreciation reserve be made part of earned surplus.

THE fundamental premise here is that economic depreciation is an expense just as much as depreciation based on original cost. The only difference is that

the former is adequate to maintain the integrity of the property, while the latter falls far short of that objective. Since the depreciation reserve is a statement of reinvested property, then the annual accrual for economic depreciation, if the books have been revalued, should be credited to the depreciation reserve.

However, under current accounting conventions, the setting up of special replacement reserves or of an appropriated surplus for maintenance of property values could in a rate proceeding be an open invitation to deduct such accumulated accruals in the determination of the original cost rate base. Such practices would be unfair, inequitable, and inconsistent. Consequently, not only would all benefits be lost, but it is conceivable that slow growing companies would be particularly vulnerable since their rate bases could be reduced substantially below the original cost levels.

The Adjustment to the Balance Sheet

THERE is little doubt that the opponents of realistic current cost accounting will raise the old argument that the industry is back at its old tricks of

"writing up the books." It should be noted that the total of the so-called "write-ups" amounted to something like 16 per cent of the original cost plant account as it stood at the end of 1937. Of this amount, approximately 5 per cent was due to the inclusion of electric plant acquisition adjustments on property acquired in bona fide arm's-length transactions (Account 100.5). The balance, amounting to 11 per cent, was the socalled electric plant adjustment (Account 107). What the industry was doing here was merely capitalizing the future values of integration and large-scale operations. However, these amounts were insignificant compared with the growth of inflation which began to show itself in the late thirties.

In this connection the Handy-Whitman Index, which averaged 191 during the period from 1920 through 1930 (a period of tremendous expansion), already had risen to an index of 224 in 1937, the year that the FPC put into force its Uniform System of Accounts, or a gain of 17.3 per cent, an amount materially greater than the 11 per cent "write-up" under Account 107. In other words, even during that period utility plant was noticeably undervalued in terms of current dollars. Since then the growth of inflation pushed the index from 224 in July of 1937 to 616 as of July 1, 1959. the rise representing a loss in purchasing power of the dollar of 64 per cent.

As stated previously, a utility company's balance sheet in today's dollars is largely meaningless, since the only thing that it reflects is the net current asset position. The only way that realism can be brought into utility accounting is to

adjust the balance sheet to current values. In essence, it requires the adjustment of the plant account by trending the original cost of plant in service to today's values by the use of some index like the Handy-Whitman Index. In the process of trending the books to a present value basis, the method would be to credit the Capital Surplus Account with the difference between original cost and trended original cost.

The adjusted balance sheet which follows (page 891) reflects the revaluation of assets needed to bring the original cost balance sheet into conformance with today's economy under conditions of inflation. Also needed to make this balance sheet meaningful is to have earnings sufficient to reflect the present fair value costs of delivering service to the customers.

The important changes which have occurred in the translation of the original cost balance sheet to one based on current cost are principally in the plant, depreciation reserve, total capital stock, and surplus accounts. Thus the plant account has increased by 70 per cent, which is a measure of the inflation which has taken place. To put this in a somewhat different perspective, it can be said that because of the lack of realism in original cost accounting, the plant of the class A and B utilities is recorded on the books at only 59 per cent of its restated value.

The reserve for depreciation based on original cost amounts to \$7.37 billion as compared to reserve requirement based on trended original cost of \$18.44 billion, or an increase of 150 per cent. Note that the ratio of reserve to plant under original cost of \$150 per cent.

inal cost accounting amounts to 18.8 per cent, while under the current value approach it is 26.8 per cent.

The increase in total capital stock and surplus amounts to 101 per cent. Based on common equity only the increase amounts to 132 per cent. It is significant that the market price to book value relationship of common stocks in a large number of electric utilities is not ma-

terially different from that in the fore-going revaluation.

The Pressure of Inflation Will Not Diminish

THREE false theories have had a large audience since the end of World War II. These are:

(1) Inflation cannot last—what goes up must come down.

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BALANCE SHEET—DECEMBER 31, 1959 (000,000 Omitted)

(voc, voc Chartee)	Actual (1)	Adjusted (2)
Assets and Other Debits	\$	\$
Utility Plant Electric utility plant Reserves for depreciation and amortization	42,322 8,079	71,651 19,405
Electric utility plant less reserves Other utility plant less reserves	34,243 3,631	52,246 3,631
Total utility plant less reserves Net Investment and Fund Accounts Total Current and Accrued Assets Total Deferred Debits Capital Stock Discount and Expense Reacquired Securities	37,874 1,058 2,943 230 82 25	55,877 1,058 2,943 230 82 25
Total Assets and Other Debits	42,212	60,215
Liabilities and Other Credits Capital Stock: Common capital stock Preferred capital stock Premiums, assessments, etc.	8,520 4,116 1,464	8,520 4,116 1,464
Total Capital Stock	14,100	14,100
Surplus: Capital surplus restated Capital surplus Earned surplus	355 3,356	18,358 3,356
Total Surplus	-3,711	21,714
Total Capital Stock and Surplus Total Long-term Debt Total Current and Accrued Liabilities Total Deferred Credits Total Reserves Contributions in Aid of Construction Accumulated Deferred Taxes on Income	17,811 19,834 2,966 167 107 169 1,158	35,814 19,834 2,966 167 107 169 1,158
Total Liabilities and Other Credits	42,212	60,215

⁽¹⁾⁻Privately owned class A and class B electric utilities in the United States.

^{(2)—}Electric utility plant and related reserve at trended original cost-spot price. Net adjustment of \$18,003 credited to Capital Surplus.

- (2) If enough plant at current cost is put in, the industry will somehow achieve fair value and hence compensate for inflation.
- (3) Advances in technology will cut costs and hence there is no need for rates which will offset inflation.

In varying degrees all are patently false and misleading.

Inflation Cannot Last. Not only has it lasted, but there seems little prospect that it will lessen. The pent-up demands for goods and services following World War II forced both the Consumer Price Index and the Handy-Whitman Index to rise 24 per cent and 23 per cent, respectively, in the period from 1945 to 1947. In the period from 1947 to 1950, a period of seeming normalcy, the two indices rose 8 per cent and 19 per cent, respectively. The Korean War forced the Consumer Price Index up by 11 per cent, while the Handy-Whitman increased by 22 per cent -a substantial amount. From 1953 to 1956, the Consumer Price Index increased 1.6 per cent, while the Handy-Whitman Index rose 15 per cent. From 1956 to 1959 the corresponding increases amounted to 7.2 per cent for the Consumer Price Index and 13 per cent for the Handy-Whitman Index.

It is difficult to see how the foregoing increases, particularly in construction costs, can be construed as an indication that inflation is about over or that it is likely to be over in the future. Fundamentally, this country's national and international affairs are in an inflationary posture. Nationally, big spenders and big taxers are in the ascendancy, regardless of party. At the same time labor, in try-

ing to sustain or improve its real purchasing power, unintentionally or otherwise promotes further inflation because of the continued pressure for wage increases not necessarily related to increased production.

On the international scene the rapidly increasing threat from Russia on all fronts—military, political, scientific, and economic—will undoubtedly result in increased spending for defense which, however great the need, is nevertheless inflationary. As long as Communism exists, so will inflation. The two evils go hand in glove. Since Communism cannot change its stripes, neither can the inevitability of inflation.

The Myth of the Automatic Fair Value Rate Base

In spite of all evidence to the contrary, some utility executives and commission personnel have indicated that when enough new investment has been made, then by some means-never clearly explained—a utility will achieve the equivalent of a current value rate base. The argument commonly used is that, since in the last ten years net utility plant has increased approximately two and onehalf times, all of it at current cost, then automatically the plant in 1959 would have at least a weighting of 60 per cent current cost and 40 per cent original cost. This sort of reasoning is, of course, totally fallacious, since it completely ignores the cumulative effect of the continuing extremely rapid depreciation in the purchasing power of the construction dollar which the annual new investment in utility plant cannot offset.

In 1949, at the beginning of the tenyear period mentioned above, the Handy-



Whitman Index for the North Central division stood at 374. In 1959 the index had risen to 616, or an increase of 65 per cent over the earlier period. In other words, the construction dollar of 1959 could buy only 61 per cent of the plant that it could have bought in 1949. It is significant that while in 1949 the net original cost plant account of the class A and B utilities was only 66.8 per cent of the trended original cost for that year, by 1959, in spite of all the claims that the fair value rate base was "just around the corner," the relationship of original cost to trended original cost had worsened by falling to 65.6 per cent. Inflation has proceeded at a rate faster than the rate of growth of the electric utility industry. As long as this condition exists, and there is no reason to believe that the political and economic climate will change from its present inflationary bias, no amount of growth with so-called "new dollars" will give the utility industry a fair value rate base.

The whole of the foregoing theory has the specious attraction of another famous New Deal slogan of "spending your way to prosperity." That, too, fell

by the wayside along with the dollar that was once worth one hundred cents. No amount of future spending, which unfortunately both of the major political parties are committed to, will bring the dollar back or even retrieve a portion of the loss.

By the same token the only way the utility industry will achieve fair and equitable earnings which will keep their property intact will be to persuade the public and the commissions that, in the final analysis, it will be in the interest of everybody and not merely the stockholder that the rates be based on fair value as the only fair measure of the cost of service rendered to the public. The exhaustive studies of the Bell telephone system with respect to the contributions which nonregulated companies with good earnings make to the public and national welfare indicate that requirements for the utility industry are the same. Any other source of action will be merely an exercise in self-deception.

The Failure of Regulation by Compromise

THE history of utility regulation since World War II has been one where the so-called "end result" doctrine based primarily on original cost has exacted an ever-increasing toll on earnings of electric utility companies.

Just and reasonable rates have been a fundamental legal requirement since the beginning of regulation. They can be just and reasonable only in terms of the economic environment of today, and not in terms of the conditions of a past which will never return. But in practice rates have been set on the progressive errors of inflation.

Essentially, the argument on the part of some utility commissions has been, "Never mind a fair value rate base or normalized taxes. We'll give you (the utility company) a higher rate of return as compensation." The FPC in many of its post-World War II cases used this plausible doctrine to keep natural gas companies at about a 6 per cent rate of return or less, when actually it should have been granting a return of at least 9 per cent or better if it had followed its own doctrine.

Those commissions that have denied utility companies normalization of taxes under §167 of the Internal Revenue Code of 1954 have also said that in lieu of such normalization a higher rate of return would be granted to compensate a utility for the denial of certain economic advantages given to all other federal taxpayers.

If such an apparent increase in rate of return is actually allowed (and there is substantial belief that these increases are more apparent than real), then any future commission in considering rate increases arising from subsequently increased taxes (which must follow pre-

viously decreased taxes resulting from the use of liberalized depreciation) will have some justification in denying such rate increases on the ground that the utility already has been compensated earlier by a higher return.

The same kind of reasoning could be used by a commission in denying a utility annual depreciation accruals by promising it a higher rate of return to compensate it for the exclusion of a legitimate item of cost.

The foregoing illustrations merely point out the fact that the acceptance of the Hope case (totally inapplicable to state jurisdictions) with its pernicious "end result" doctrine, which had its beginning in a totally different economic climate, can only result in rates which are unjust, unreasonable, and confiscatory.

Not only have utilities not received a fair return, but it is difficult to see how any commission could grant them earnings predicated on the end result doctrine without having to raise the return to 9 per cent or 10 per cent on net original cost, a proposition which as a practical matter would be difficult to support.

Advances in Technology Will Not Offset Inflation

THE tremendous advance in technology which has characterized the private electric utility industry's progress in the last twenty-five years has been seized upon in many rate proceedings to deny the utilities a fair and equitable return on a current value rate base. The general argument of the opposition has been to the effect that the impressive gains in technology which the industry has made in the past will be made at the same rate into the indefinite future.

Therefore, the argument runs, the consequent reduction in costs will offset any future inflationary pressures. This rather wishful extrapolation of technological improvements is, of course, totally at variance with the facts of life of the future.

Here is a record of the past. From 1949 to 1959 the average steam-electric station heat rate declined from 15,033 Btu per net kilowatt-hour to 10,879 Btu per net kilowatt-hour, or a decline of 27.6 per cent. In the same period the total cost of production went from 0.511 cents per kilowatt-hour in 1949 to 0.392 cents per kilowatt-hour in 1959, or a decline of 23.3 per cent. Significantly, however, from 1955 through 1959 costs declined from 0.398 cents per kilowatt-hour to 0.392 cents per kilowatt-hour, or only 1.5 per cent, while in the same period there was a decline in the average Btu per net kilowatt-hour of 7 per cent.

The foregoing indicates, of course, that as far as production is concerned, substantial price inflation had more than overcome the modest technological gains of the last four years.

For capital costs, the best measure of the industry's achievement is the relationship of the Handy-Whitman Index to the cost per kilowatt of steam capacity installed in the period from 1949 to 1959, a period in which the industry increased its steam capacity by 172 per cent. While the Handy-Whitman Index went from 400 in 1949 to 641 in 1959, an increase of 60 per cent, the corresponding average cost per kilowatt in service rose from \$108 to \$129, or 19 per cent. The incremental cost added during this period amounted to \$141 per kilowatt, 31 per

cent more than the average at the beginning. Admittedly, these figures are not precise due to such factors as retirements of old units and variations in methods of reporting, but they are accurate enough to indicate that with the magnitude of the inflationary pressures as indicated by the changes in the Handy-Whitman Index, technology—however great the advances have been—is incapable of offsetting entirely the decline in the purchasing power of the utility dollar.

In some respects the electric utility industry is in double jeopardy today. On the one hand is the lack of recognition of current value in regulation, including insistence upon depreciation allowances designed to recover only original cost, which puts the industry in a position where it pays dividends out of capital and is taxed for so doing. On the other hand, there looms the possibility of early development of new means of lower-cost power production, such as the direct conversion of energy into electricity by thermoelectric converters, fuel cells, or by some major



JUNE 22, 1961

breakthrough in the nuclear power field. Such developments could possibly lead to major problems of obsolescence within the foreseeable future. Certainly under these conditions there is nothing which would specifically exempt the power industry from the effects of revolutionary progress. Diesel power put the steam locomotive into discard in only ten years. The time to prepare for such contingencies is now, and not after the pressure of these future events begins to materialize, when it is too late.

Conclusions

THE fundamental question faced by the private electric utility industry is: Can it long survive as a member of the American free enterprise economy in view of the dangers of inflation and the lack of realism in regulation?

The apparent prosperity of the industry as measured by the rate of asset growth, the high market value placed on its stocks, and the apparent ease with which it is able to attract capital, have been achieved by the sleight of hand of original cost bookkeeping. The market prices of stocks have in part been supported by the distribution of capital because of the inadequacy of depreciation accruals. The sophisticated investor of today buys not only his own share of equity, but a portion of equity invested by an earlier vintage of stockholders. In addition, he seemingly buys the hope that he, unlike his predecessors, will escape the ax of inflation. The chances of such a favorable development appear to be remote, to say the least.

The answer, of course, lies in increasing revenues to the point where they not only will recover the current costs of property consumed in public service, but in addition will meet the comparable earnings standards of enterprises having similar risks in accordance with the Bluefield decision.⁸

THERE will be those who will argue that even if the industry could obtain the level of earnings envisioned in this article, its competitive position vis-àvis the tax-subsidized government utilities would be hopelessly compromised. There would be the further argument that the increased costs to the customer would price the electric utility industry out of the heating market against the competition of alternate fuels.

Generally speaking, however, provided there is an inherent value in the quality of service rendered over and above the cost to the public which the industry has always had, increased rates will not deter increased usages by the customers of a utility. Increased rates in the telephone utilities have not resulted in any decrease in either customer usage or in the continuing expansion of the telephone industry.

An increase of over 80 per cent in the rates of a midwestern steam service utility has resulted not only in better service but in an expansion of its facilities. The increase in rates of water utilities, which are mostly publicly owned, have ranged up to 50 per cent, yet there has been no decline in usage.

Obviously there will be companies where, because of competitive conditions or for other reasons of policy, increases in rates to cover either economic deprecia-

⁸ Bluefield Water Works & Improv. Co. v West Virginia Pub. Service Commission, 262 US 679, PUR1923D 11, 67 L ed 1176, 43 S Ct 675.



tion or the necessary earnings to cover a fair return on the fair value of property, or both, cannot be put into effect. For all that, every individual company whether or not it does anything with respect to its revenue requirements, should be acquainted with its financial position in terms of realistic accounting requirements in terms of today's dollars.

Tr should not be forgotten that economic depreciation is not a farfetched economic theory but a current reality with a number of utilities. Apart from Iowa-Illinois Gas & Electric Company, whose revenues in Iowa cover economic depreciation, the Indiana Telephone Corporation was also allowed to accrue economic depreciation.4 (The commission recently reaffirmed this order.) The recent order of a Kansas district court in the Southwestern Bell Telephone case allowed the company to take economic depreciation, The Kansas Corporation Commission has, however, appealed the case to the state supreme court. Interestingly enough, it was the Sacramento Municipal

Utility District which pioneered the introduction of economic depreciation in this country for electric utilities. Presumably, inflation does not differentiate between private and governmentally owned utilities!

NE has to go abroad, however, to find large-scale recognition of economic depreciation. The British Post Office, which consistently operates at a profit, is also the owner of the national telephone system. It depreciates its plant on a replacement basis because, as it points out, it cannot recover the cost of property consumed on an original cost basis. Similarly, the Central Electricity Authority of Great Britain uses economic depreciation and accrues at the rate of 3.5 per cent per annum on the gross plant. The comparable rate on the class A and B private utilities in this country is 2.3 per cent per annum.

In this connection it is of interest to note that in 1956 there was issued in Britain the Report of the Committee of Inquiry into the Electricity Supply Industry (the so-called Herbert Report)

⁴ Re Indiana Teleph. Corp. 16 PUR3d 490.

PUBLIC UTILITIES FORTNIGHTLY

which recommended that the nationalized electric utility industry set up economic depreciation so that "... this cost should reflect current price levels rather than those ruling at the time when the plant was originally installed."

However, it remained for the Iowa supreme court in the Fort Dodge decision in 1957 to put the whole matter in its proper legal, social, and economic context when it said:⁵

While we do not say that the Constitution of the state of Iowa requires the determination of a fair value rate base, to say that the Constitution in the light of modern judicial pronouncements no longer protects property is to forget that property rights are also human rights. Freedom is invaded when property rights are ignored and this is true when the property confiscated is owned by stockholders through a corporation as well as when it is an individual's home, his livestock, or the tools by which he earns his living.

Underlying the proposals of this article is the urgent need to establish equality in taxation between private and government-owned utilities. The administration has backed the need to close tax loopholes, and it is believed that the overriding national interest is such that all segments of the utility industry should be taxed equally. The American sense of fair play

dictates such a course of action. There is no constitutional impediment to taxation by the federal government of its own proprietary operations, of those of the states, or those of the states' political subdivisions. Unless equality of taxation can be obtained, the inevitable result of the present policies will be nationalization of a large segment of the American economy.

If this is the intent of the government, then it should be clearly stated. Anything less than that is unfair to the millions of people who have direct or indirect interests in utility securities.

THE argument has frequently been used that if economic depreciation by private industry were allowed for tax purposes, the losses of revenue to the federal government would be insupportable. It is believed that if the tax base is widened in the manner suggested, even the initial loss would be small, while the accelerated expansion of business due to the more liberal treatment of tax depreciation would be such as to result in additional sources of revenue to the Treasury.

Finally, if the private independent electric utility industry is divorced from the shackles and restraints of an archaic system of regulation by accounting, and when its earnings are based on current economic conditions, it will not only survive but make an even greater contribution to the future of the nation's economy. To this end this article has been written.

⁵ Iowa-Illinois Gas & E. Co. v City of Fort Dodge, 248 Iowa 1201, 20 PUR3d 159, 177, 85 NW2d 28.

Public Utilities and People —Inside the Customer

This is the second of a three-part series of articles dealing with three different aspects of public relations for utility companies. The first instalment, published in the May 11th issue, covered the approach of public relations as considered inside the utility company organization. In this instalment, the same problems are presented from the standpoint of the utility customer. In a forthcoming and concluding instalment, the view will be taken from the standpoint of performance of utility companies in community affairs.

By JAMES W. CARPENTER and ROBERT T. LIVINGSTON*

THE roadbed of public utility service runs mostly over level ground and customers are either happy as they use their electric, gas, telephone, or water conveniences or they are at least neutral in their reactions. Once in a while there

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may be a bump or a depression, or even a hilly stretch along the way. When any of these are encountered there is a real challenge to the shock absorbers of the utility machine. The customer wants always to travel the smooth pavement because he likes to enjoy these basic essentials of modern living. The related functions of connection, disconnection, meter reading, billing, collections, and re-



pair work are merely part of the routine of his life. They should require a minimum of attention on his part.

When he runs into the rocky going, when something he had expected and relied upon fails him, the simplest thing in the world for him is to get mad. The apparent cause may be a failure of electric service, an incorrect bill, an interrupted phone call, low-pressure gas service, discourtesy of an employee, or some similar occurrence. Actually, why does the customer get mad; and how can he be helped to get over the mad? His anger is usually so pronounced that the spell of excitement and temper he undergoes makes him act unreasonably, to put it mildly.

TF he could see himself as others see him he could perhaps realize that he is affected by something more basic to his inner nature than the surface cause of his aggravation. Sarcasm, loud voices, insulting remarks, purple faces, vicious letters, scandalous statements to neighbors and friends, profanity, physical threats must surely have some stronger motivation than a temporary interruption of utility service-particularly since the condition can recur or pass off almost instantaneously when a solution appears. The dim recollection may rankle for months or years, but the immediate outburst of the complainant has ebbed rapidly.

The cantankerous customer represents a condition of mind much more than any case of physical suffering. To understand the real cause of the mad spell, modern utility management can here turn to the use of science in full confidence that there will be only helpful progress made. The key is not in the physical sciences, such as chemistry, physics, or astronomy, but

in the social science of psychology. The human skull can be studied for certain physical conditions by an X-ray or an electroencephalograph but that will not solve a mental riddle. Autopsy might be another doorway but it would be on a dead customer and that is hardly desirable—he does not use service or pay bills. The scientific route is psychology, the study of mental behavior.

What Studies Indicate

Some years ago we made an extended and careful analysis of customer relations, the frequency of certain troubles, the characteristics of the people involved, the costs in handling the problems, and the reactions of the subscribers when smooth traveling was again achieved. We reached the conclusion that perfection of service was the ideal means of eliminating the frictions that arose, but we recognized that we could scarcely hope to achieve absolute satisfaction as long as we were dealing with physical functions and human employees.

We decided we could not get very far by asking questions of the customer because he would be irritated, might not know exactly what was what. Skill would be needed in interviewing, as well as a great many interviewers, the troubled person would be apt to slant his answers, and it would take years to establish a tested pattern of procedure. Again, we could not rely upon our own reactions because we would judge perhaps by appearance rather than by inward thought and we would be using our scale of values rather than his. Yet the mind of the customer seemed to hold the key to the search. With this definition of the task as an exploration of the functioning and

PUBLIC UTILITIES AND PEOPLE—INSIDE THE CUSTOMER

reaction of the mental process we concluded it was time to turn to a capable and experienced psychologist.

We retained the late Prescott Lecky of Columbia University, a competent specialist, to make a field study rather than laboratory tests or statistical inquiries of the customers of a sizable gas and electric company. We asked that he cover the relationship between the user and the utility in normal times of good service as well as in any periods of distress. We asked him to analyze the mental processes, to diagnose the ailments of the complainers, to outline for us the psychology of the customer, and to give us his recommendations on procedure and treatment to achieve improvement in our own practices.

OUR psychologist spent weeks prospecting for the good and bad relationships as he was traveling with meter readers, collectors, and repair men on their rounds, sitting beside local office cashiers or at the customer service desks, helping handle telephone calls, listening to applicants filing requests for new service, making surveys over private property for gas and electric extensions, reading incoming mail and listening to the dictation of responses, calling privately upon customers, attempting through all the contacts of a company with its patrons to find fundamental and basic factors that would square with the theories of psychology already generally established.

With his experiences, tests, and inquiries he retired to organize his findings and to write his explanations of the actions of people and his exposition of the laws that appeared applicable and the actions he could recommend to meet our problem. These he expressed in psychological language, perhaps too technical for average consumption. Still we were able to put the results to work and through a gradual practice of trial and error we converted his report into language and examples that could be readily understood by employees of reasonable intelligence.

Guide Lines Established

PROFESSOR Lecky set forth these guide lines for our dealing with customers in ways that would go beyond the factual elements to the internal or mental causes of their irritations or distress. He gave us these fundamental laws or rules for our study and use:

- (a) The law of continuous action.
- (b) The law of unified direction.
- (c) The law of self-consistency.
- (d) The law of external unity.

The first of these is part and parcel of the very act of human living. It has the same place in the field of the mind and the control of human conduct as the blood stream or the breathing system has in keeping the body going physically. It



means that everyone who is alive must always do something. Unlike a man-made law, this one does not attempt to say that the person shall do thus and so shall not do one thing or another; it does say that he has a choice on what he wants to do but he has no choice between doing something and doing nothing. He must keep in action but it need not be physical motion or anything visible to his neighbors. The unconscious act of sleeping is an example at one end of the scale, at the other may be the hard physical labor of digging ditches, carrying on battles, or scaling mountains.

HE second of these laws, that of unified direction, follows right alongbehind the first law. Since a person is an individual, a unit, a one thing, it sounds reasonable to say that he can do only one thing at a given time. If he could follow two separate trails at one time, he would have to be two things. This is not to say that he cannot do certain acts at one and the same time but in the doing of things such as controlling an elevator and speaking to passengers or watching airplane dials with his eyes and handling steering gear with his hands he is accomplishing parts of a whole. In one instance he is running an elevator and in the second he is flying a plane. The essence of it is that it is both psychologically and physically impossible to move in two directions at once. No one has thus far reached the ability of Stephen Leacock's Tancred the Ten Spot who leapt upon a horse and rode off in several directions. The whole man does one thing, simple or complex as it may be, and this law declares that the things he does at one time are not separate but part of a unified action.

The law of self-consistency maintains that the human mind is logically organized with one central idea, the image a person has of himself. Around this are clustered all of his other ideas that come into being. Selfish or unselfish, this is common to all human minds. Always a person is seeking to maintain consistency in all his thinking with this central vision. He follows this viewpoint in choosing between right and wrong, in the selection of friends or associates, in seeking pleasure and avoiding pain, in choosing the things to buy and the comforts desired in living. All must co-ordinate and combine favorably with this nucleus of his own view of himself.

ALL of us struggle against those things that attack this first principle. We like those things that from experience we know are in tune with our own core idea, we shun those things which are cross-grained to our own center. These latter we may try to avoid, eliminate, alter, or disregard. When we cannot, we are forced frequently to "rationalize"; that is, to find an answer or an explanation that tunes the disagreeable in with our own self-picture. As a final expedient we twist the experience so that nobody else would recognize it or even completely disregard it, or, if possible, forget it.

We expect to be treated by others in accord with our own viewpoint of ourselves. Anything that does not square with this concept is usually considered to be done deliberately by somebody or some company. When it troubles us or hurts our feelings we believe the act of the other person to be *against* us, and, therefore, not excusable. Such an attitude or viewpoint by a particular person often

PUBLIC UTILITIES AND PEOPLE—INSIDE THE CUSTOMER



makes others say, "Who does he think he is?" Which remark has been said to be a profound psychological truth—for so we are, we behave as we believe we must behave because of who we think we are.

Finally there is the law of external unity. This is both psychological and anthropological and goes beyond law number three to bring into play the contact and association of a single person with others whether he treats with them often or seldom. Here is a human instinct toward co-operation. The search for unity that is maintained by every person is only satisfied in full when the individual can act in tune, in reasonable agreement, with his fellows and, perhaps most importantly, is accepted, optimistically approved, and admired by others.

It is, of course, vital to remember that agreement is a two-track affair. Desire, ability, willingness to agree must move in both directions; from one person toward another or others and from them toward the first person. In legal affairs, particularly in business contracts, this is

what is called the "meeting of the minds." Such unity comes about by common ideas which may not of themselves guarantee harmony but they will certainly provide the bridge or link of agreement between people.

In these four laws are to be found the thinking and action of customers when confronted with problems, with dissatisfaction, with conditions beyond their control. Experience over the years has shown us that dealing with people is always easier and solutions are reached more rapidly when these laws are kept constantly in mind.

In the foregoing we have set forth what may be called the theory outlines of these laws. Now we turn to the "for instances" which will present the actualities of dilemmas that confront people both generally and in utility matters:

Practical Situations

A PERSON is in an unfamiliar situation. He cannot maintain either continuous action or unified direction. He has no habits of thought and action to use in his quandary. There are many examples, perhaps seen most clearly in the reactions of children but certainly prevalent also among adults. There is the fright a child shows when alone in a dark room and crying loudly because of the blackness of the night. There is the apprehension of child or adult making a visit to a dentist to have a tooth pulled. There is the daze that envelops many people when appearing among strangers or stepping from a train, plane, or bus into alien surroundings.

Applied to any form of utility service the customer is often not capable of working out of the difficulty that surrounds him when there is a service failure-it is fear-fear of the unfamiliar rather than anger that upsets him. He is accustomed to the unlimited use of utility service, and when it is not at his command, he may have no pattern of action or habit to solve his problem. Failure or partial supply leaves him stunned because he has no thought of an alternate. In such a situation he needs some form of action to keep his continuity, but he does not know what to do next, thus interrupting his unified direction going, and when he is thrown out of gear temporarily, he resorts to complaint or collapse.

Such was the course of action indicated in the young mother's frantic telephone call when she was faced with the need to go through the coming night without electricity—the baby's milk that should be kept cool in the electric refrigerator, no lights against intruders, the husband away on a business trip. The approaching darkness appeared like an ogre and the dilemma could only produce tears and misery. She chooses hys-

teria rather than one of the alternatives of getting ice, calling on the neighbors, or sending for a relative.

The uncertainty of the customer may become more complicated if he feels the company is inconsiderate of him. He may experience a long interruption in service or he may need some repair work on a telephone set, gas range, or electric service wires. He makes a request to the local office of the utility company but gets no action, and then he telephones the service department or calls in person at the general office. The company employee with whom he talks encounters customers who have the same problems many times a day and is prone to treat this instance casually, thus giving the idea of regimented, diffident handling. We recall with grim humor the instance where one of our associates was lucky enough to have his electric service unharmed by a serious sleet storm, while across the street his neighbors lived by fireplace heat and candlelight. Their remarks about him are unprintable, and while he was completely blameless for this discrimination, he found his only good defense was to turn out his own lights. Every customer is expecting the utmost in immediate and direct attention to his own problem. He will be upset, angry, inimical, unless he has complete, undivided attention, and he will react favorably if he recognizes an air of confidence in the handling of his difficulty.

2. He believes that he is being subjected to delay. For instance, who has not sat in the outer office of the doctor or dentist, particularly when an appointment has been made, and raged inwardly at the number of other patients

PUBLIC UTILITIES AND PEOPLE—INSIDE THE CUSTOMER

present, or the deliberation with which the professional man works upon the lucky person in the inner office; not to mention the serious nature of one's own ailment compared with those of the other occupants of the room.

Again, one of the requirements of good citizenship is to serve upon juries—and what feelings arise when the panel of twelve sits silently in the box while their case is recessed as judge and lawyers engage in prolonged discussions on some court calendar matter not involving the juror. Next time the notice of jury duty is received, the citizen recalls vividly the delays and seeks excuses to present to the court.

In the utility business there is the applicant occupying or wishing to occupy his newly finished home who loses his restraint when he cannot get electric, gas, water, or telephone service connectedand it makes no difference to him whether he made application promptly or not, because he expects the job to be done to his schedule, not that of the installation department. Wire or pipe shortage, failure of the contractor or plumber to finish the inside work just do not count; the applicant wants action now. He may see customers in some areas or with other types of problems getting attention before he does. Naturally this is a direct blow at his self-consistency, an attack upon the importance with which he rates himself. Moreover, the delay fancied or factual, drives him even harder into finding some outlet that will provide for his continuous action. This upsets him still further.

Additional Theoretical Cases

3. Sometimes a customer faces a situation in which he has to choose one

of several lines of action, no one of them familiar. He may choose one and then cling to the idea that he ought to have chosen another. Thus he puts himself into the conflict of trying mentally to do two things at once. Unconsciously he has set up a new internal problem that interrupts his course of consistency, and while the external, immediate problem becomes momentarily less important, the inner conflict may make him more than normally active or loud in his language.

⚠ HE is confronted by an apparent failure of the company or some person in it to live up to an agreement or promise that has been made. Appointments either broken or met tardily are minor examples of the same situation. These acts take on the form of a contract, whether written or not, and like all contracts are the basis of modern human activity. In civil life the broken contract leads to court action, prolonged argument, and sustained bitterness. To the utility applicant or customer it means that his organization of himself is interrupted, thrown off balance, or even seriously damaged. For example, he made a date with the company to have some



JUNE 22, 1961

work done in his summer bungalow on a certain Friday morning, and he advised the company he would drive out to the country place to open it up by ten o'clock so the men could work inside.

He takes the day off and starts out by automobile. Halfway there he has car trouble and finally reaches his place just before noon. He sees no men around and he sits in his car waiting for them; he misses the card attached to the kitchen door telling him they were there at ten o'clock and will return when he advises the office of a new date. He gradually works around to cussing and eventually his inner steam pressure rises to the bursting point. Continuity and unity and self-consistency have been dealt body blows.

5. He finds himself encompassed in panic. While this condition may be achieved by a single person in some of the difficulties we have outlined, normally it appears in group action. In such situations we have a manifold interplay of conflicts with the laws we have outlined.

For instance, a person seeks relaxation, entertainment, and pleasure in a night club or theater. The program is enticing enough to draw a crowd that fills the place. In the midst of the activity some practical joker or some impulsive creature yells loudly, "Fire, fire!" Immediately people stand up, look for flame and smoke, and forget every suggestion of warning that has been made about picking the nearest exit, moving calmly, and keeping in order. Even those who hold back are crowded by their neighbors or they absorb the mob feeling and push to a door or window. In an instant a group of sane people have exchanged their

judgment for uncontrolled, desperate action leading to violence and frequently to serious injury and death.

We might consider that a force of emotion has overcome all of these people, but to do so ignores the mental processes of many of them. The first reaction of the average person is: "What shall I do?" even though he has no knowledge of any fire, its size, intensity, or proximity. Many of the persons in the place will react instantly or rapidly because their normal flow of action has been broken, and they now want to do only one thing, to escape. Their external unity responds to predominant mass action and they move with the mob.

ME attempt in many ways to overcome this possibility of panic by establishing a pattern of fire drills for such cases as the above or boat drills for possible shipwreck. While these drills may be of some aid, the people who have been through actual events of this character will react more sanely upon any reoccurrence. The citizens of England overcame panic of bombing from planes or projectiles as they went through more and more of the attacks. Americans in the northeastern states during the last twenty years have not learned to love hurricanes more, but they have built up resistance and adjustment through experience of eight or ten major storms.

This same panic action may be encountered in simpler but equally disruptive form in public utility affairs. In a public gathering concerned with the proposed installation of a new gas holder, the construction of a new highway, the location of an electric generating station, or in the discussion of telephone, gas, or



electric rates, a mob uprising can be touched off by one vociferous and dissident speaker who figuratively yells "fire" by his bombastic language describing the harm to be done him and his neighbors—and the reign of terror threatens to kill a project that actually is vital to the welfare of all these people.

Practical Application

THE translation of our psychologist's four laws of conduct into the actual cases of many happenings such as the foregoing examples, brought to us through the years ten positive commandments for use in bringing irate, disturbed, and complaining customers back into pleasant relationship:

1. The angry customer puts too much energy into his actions. By a few courteous questions get him back to familiar ground as quickly as possible. Get him talking to help organize himself again.

2. Keep calm and inquire quietly for facts. Let the customer speak. He is organized to talk. Interruption will only set up another conflict. He does not yet want to listen; he wants to talk.

3. Be attentive or the customer will be forced to try to do two things at once, remembering what he wants to say and trying to get your attention. Do not make him repeat to you what he has said just because you did not hear him.

4. Shun contradictions and thus keep from attacking the whole organization of his experience and behavior. Contradictions arise not only in speaking but may be implied by your lack of respect, apparent inattention or interruption to deal with something else. Insult is, of course, much, much worse even if unintentional.

5. Keep away from treatment by rules. That is the sure sign of a company agent attempting to escape thinking, suggesting a course of action, offering an explanation. Use insight and understanding.

6. Do not reverse the flow of talk too quickly. That causes more conflict. Give a man a chance to change his own direction.

7. At the right point or in the right way ask him to repeat either to you or preferably to someone else selected details of his story. His blood pressure drops

markedly going over the story to "someone higher up."

8. If a decision has to be made, help him think through to his *own* choice. Let him determine for himself, if he is wrong. Such a conclusion will bring him to thanking you.

9. Handling a complaining customer is like boarding a moving train; move with the train, travel the second mile with the customer.

10. Practice the Golden Rule of public relations; treat the customer the way he wants to be treated. Build a bridge of agreement between him and you; once you are both on it the chances of using it together are great. Agree that

- (a) The customer has a problem;
- (b) The company has a problem;
- (c) It is the same problem.

THIS venture into the mind of the customer is best presented to utility employees, not as psychology which to them seems a subject remote from their normal work and interests, but as a way of dealing with people that eases their own tasks. In over two decades of experience in such practice we found that they take lively interest in the discussions and their constant reports on "for instances" that they encountered added greatly to the testing of the method.

On the other hand, company executives seem to be deeply engrossed when they study directly the psychology of the customer. In our work of the past ten years with several hundred industry leaders attending Columbia University Management Workshop at Arden House, we have observed that practically all of the participants have read little about psychology, even though they have had experience in practical psychology, and there is no other phase of the work which receives greater response than this use of science in understanding the patrons and themselves.

Suffice it to say that the work of the utility company must be continuous in finding new and better ways to make the individual customer happy in order that it may further advance its efforts to create its image as a good neighbor upon all of its customers in the community, a subject that we shall discuss further.

- 1. As long as you are alive, "you can't do nothing."
- 2. You can do one thing at a time.
- You are the center of your own universe.
- 4. It's more pleasant to work with others than all alone.

All old stuff, much of which we learned as children, but it is true of us today as it was yesterday and as it will be tomorrow. It's people that count.

THE things that give meaning to life are not included in the budget of big urban projects. The great boulevards of Paris needed the café to translate the large-scale order of movement into the intimate order of repose, conversation, and human stimulation. The off-Broadway theaters and the expresso bars have done more for the culture of the city of New York than acres of pretentious estheticism."

—LEWIS MUMFORD, Philosopher and author.



A Roundup on Space Communications Activities

Proposals for the use of satellites in national and international communications have been receiving close attention on the part of government and industry. On the government's side the Federal Communications Commission, the National Aeronautics and Space Administration, the State Department, and the Department of Justice, responsible for enforcement of the antitrust laws, are all directly interested. On industry's side the major operating and manufacturing companies have been working on the subject assiduously.

By HERBERT BRATTER*

Federal Communications Commission

THE Federal Communications Commission has been inquiring into the problems of potential space communication systems. In May, 1960, it started an inquiry concerning the need of frequency bands for space communications. In April, 1961, it announced an additional inquiry to determine what plan of participation is best designed to provide equitable access to, and nondiscrim-

inatory use of, satellite communication facilities, by existing and future international communication common carriers and others.

FCC's Public Notice, G (1627) of March 14, 1961, describes the commission's relation to space communication, co-ordination and co-operation with the National Aeronautics and Space Administration, international considerations, FCC proceedings, experimentation monitoring, and radio astronomy. On February 28, 1961, the FCC and NASA

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announced a joint "memorandum of understanding" for delineating and coordinating their respective responsibilities in civil communication space activities.

THE following statement reflects FCC's attitude toward private industry in space communications:

The commission is encouraging experimentation in this new field in the hope that private industry can develop considerable additional technical information which will serve to further the country's overall space program.

In this regard, an experimental authorization was granted in January of this year to the ITT Laboratories, Nutley, New Jersey, to bounce signals off the moon and passive (nonradio-equipped) earth satellites for basic research and study.

Also in January of this year, an experimental authorization was granted to the American Telephone and Telegraph Company to permit it to go forward with plans to develop an experimental program wherein earth terminal facilities at Holmdel, New Jersey, would transmit to and receive from active (radio-equipped) earth satellites which also are undergoing development by AT&T.

NASA's Rôle

THE advent of the Kennedy administration has brought about a change in pace at NASA. Under Administrator James E. Webb, NASA is making a reappraisal.

Originally, NASA wanted private enterprise to operate the future space communications system, as does the FCC. Now NASA is reportedly toying with the

idea of government operation. Also "up in the air" is the allocation of spectrum space for government and private use and the effects on existing private microwave systems.

In October Webb's predecessor, T. Keith Glennan, in a speech at Portland, Oregon, said:

The utilization of satellites to provide communication links as a part of ordinary commercial services may involve, in the not too distant future, the first nongovernmental activity in outer space. Traditionally, communications services in this country have been provided by privately financed carriers competing with one another to serve the public interest under federal controls and regulations. There seems to be no reason to change that policy with the advent of communication satellites. It is clear, however, that such activities involving the launching of vehicles into outer space must be regulated in the public interest, even during the stages of developmental testing.

GLENNAN recapitulated the problems of space communications development, saying:

Needless to say, the promise of things-to-come is not an easy one to realize. Problems of component life, problems of launch vehicle and space-craft engineering, problems of discovering the types of satellites best suited for the services in demand, problems of system reliability, problems of economics, and problems of international arrangements, lie before us. We must know more than we do if we are to avoid, at some time in the future, the

A ROUNDUP ON SPACE COMMUNICATIONS ACTIVITIES

long-distance operator saying, "I'm sorry you were cut off, sir, but your satellite just went out of range."

M^{R.} Webb, in a background press briefing on March 28th, described the basic change made by the new administration as "simply to postpone, until we know more than we know today, the real decision as to how this new result of space sciences and technology can be most usefully applied."

He continued:

The provision in the Eisenhower budget was that an estimate of as much as \$10 million would be received from private industry during that fiscal year. This was not specifically allocated to any particular feature. It was simply an adding up of all of the things that were to be done and then an arbitrary reduction of \$10 million which it was estimated could be obtained from private industry.

As we have looked at this whole problem, it has seemed to us it was too early to start negotiating with private industry to come in. First of all, it was not fair to private industry to ask them to assume risks which were unknown at this time. I think the people in private industry have found that there were a number of factors, including risks, and perhaps costs of failures on launch, that simply had not been taken into account or were so uncertain that it was beyond their capacity to estimate what would happen if they undertook these responsibilities.

The new policy, then, represents a policy decision to have a good hard look at this before making commitments.

S^{OME} days later Webb, testifying before the House Committee on Science and Astronautics, revealed a change in the financing plans:

In our programs for the practical application of space for peaceful purposes, the research and experimentation in connection with the communications satellite program remain unchanged; however, an increase of \$10 million over the previous budget is requested. This increase will provide full governmental as against partial industry financing pending necessary policy decisions as to the best means for wider industry participation and co-operation and co-ordination between American industry and the United States government, as well as to the most desirable relationships with foreign governments and industry. Our program is based on the fullest possible utilization of industry resources, technical competence, ground installations, and organizational know-how. The early experimental stages are now under way. In addition, NASA is financing a number of important longrange studies. Some of these involve



JUNE 22, 1961

technical aspects, and some analysis of the factors needed to formulate and implement national policy. At the same time, we are working closely with other agencies of the government to develop information that will form a basis for estimating governmental requirements. We are expanding our work with the various companies and agencies in the communications industry, both to establish their needs, their view, the courses they desire to pursue, and to find better ways to utilize their knowledge of the needs which this new technological breakthrough can fill in carrying out NASA's responsibility for the utilization of space science and research for the benefit of all mankind. We are working closely with the FCC in its effort to determine the factors which should underlie sound governmental policy as to frequency allocation, regulation, and other matters within their area of competence and responsibility.

As many of you know, on March 30, 1961, FCC took action to initiate an inquiry into the problems of regulating commercial space communications systems, including such problems as provision for equitable access to, and nondiscriminatory use of, satellite communications facilities. Included in the scope of the FCC's inquiry are also such matters as operational arrangements and other factors related to the ownership and use of the system.

The State Department is actively considering the problems related to the international negotiation of frequency allocations for space communications purposes, and the Secretary of State has met with me to arrange close co-

operation between the Department of State and NASA in exploring the international policy aspects of communications and weather satellites. Other departments of the government are being drawn into the discussions as appropriate.

DEPUTY Administrator Dryden told the press on March 28th that NASA had had no concrete proposal submitted by AT&T or anybody else for private development with government aid. Webb then explained:

I think it is fair to say that just as the government is taking another hard look at this, so are the other people interested in it. More information is known now, there are features involved, far beyond the question of science and technology, and the physical capability.

I think it is fair to say that not only AT&T but the other companies interested in this whole area are making a very thorough exploration of it, doing some real soul searching as to what can be done here that will be useful to everyone.

Two Types of Communications Satellites

NASA classifies communications satellites as the "passive," or mirror, type and the "active" type. Project Echo, described in Public Utilities Fortnightly last year, is of the former type: a 100-foot-across balloon successfully launched. NASA plans follow-up experiments with the Echo sphere this year and next.

At the NASA-industry conference last July NASA reported:

A ROUNDUP ON SPACE COMMUNICATIONS ACTIVITIES



Plans for the future are very tentative and depend upon the results of earlier experiments. Experiments with multiple passive communications satellites, designated by the code name Rebound, are being considered. Studies indicate that at least 12 passive communications satellites spaced around the world are required to provide essentially continuous communication. For this plan to be economically feasible, several satellites should be placed in orbit by a single vehicle. Initial development under this project will be concerned with the problems of packaging and erection of reflectors upon injection into orbit. If this work appears promising, then further attention will be directed to the problem of providing period control for multiple passive satellites. Atlas-Agena B launch vehicles might be utilized for flights shown for Rebound experiments during the years 1963-65. . . .

Experiments with active communications satellites are being conducted by the Department of Defense. This type of satellite differs from the passive type in that it contains a power supply, a receiver, and a transmitter for relaying signals received from a ground station to another satellite or to another ground station. As the Department of Defense experiments with active satellites and NASA experiments with passive satellites progress, NASA will evaluate the results in order to establish which system is best suited to commercial applications.

Up to the present time, the communications satellite program has been directed toward performing basic research in signal propagation, demonstrating inflation techniques for large spherical structures, and perfecting techniques and methods of tracking and ephemeris generation. The level of effort being supported directly by NASA, exclusive of launch-vehicle funding, is expected to be approximately \$5.5 million in the current fiscal year and will increase substantially in succeeding years. As our programs advance into experiments of the Proj-

ect Rebound type, NASA will rely increasingly upon contract development and fabrication of pay loads to satisfy project requirements.

FCC Invites Applicants

HE Federal Communications Commission on June 5, 1961, heard government and industry spokesmen on the subject of private enterprise establishing a communications satellite system. Originally, the commission had planned to hear only the international carriers, excluding companies which manufacture communications equipment. However, this decision was reversed and all parties were permitted to voice their views. It still appears, despite this reversal, that the FCC may eventually be in favor of allowing a combination of existing international carriers to establish the satellite system. This would, of course, mean the American Telephone and Telegraph Company, the International Telephone & Telegraph Corporation, and the international radio and cable communication companies.

Specifically, the companies which would be part of such a giant group would include: AT&T, American Cable & Radio Corporation (an affiliate of IT&T), RCA Communications, Inc., Tropical Radio Telegraph Company, Press Wireless, Inc., U. S.-Liberia Radio Corporation, and South Puerto Rico Sugar Company.

General Electric Company has requested the commission to reconsider its previous decision to restrict ownership to the international carriers. It is anticipated that when the FCC rules on the GE request it will also authorize a committee to negotiate the formation of a multicompany satellite group. This may or

may not include the manufacturers, depending on the commission's action on GE's request. As noted elsewhere AT&T already had been authorized by the FCC to conduct experiments with space communications satellites and the present discussions will not change this program. This would seem to place AT&T ahead of the pack. However, the FCC has indicated that authorization of this experimental satellite program will in no way influence its future decisions regarding commercial satellites.

NEW and interesting factor, however, was introduced at the June meeting of the applicants, Government spokesmen have been speaking in terms of a "worldwide" communications facility, rather than the more modest programs which have been outlined by most of the companies represented. For one thing, the government is looking into the possibility of aiding new and underdeveloped nations in the establishment of communications ground stations. It would be an effort to win political friends through world-wide communications. Such a huge system would probably have to receive some financial aid from government.

AT&T

THE Bell system's space policy as given out in March is summarized as follows:

Bell Interest in Space—It stems from the fact that a space communications system would be a natural extension of networks used in providing service to the public today.

The Monopoly Question—The Bell system does not seek a space communications monopoly.

A ROUNDUP ON SPACE COMMUNICATIONS ACTIVITIES

Bell Satellite Proposal—Bell has proposed a satellite communications system which would be operated under government regulation just as today's communications systems are operated.

Satellite Usage—Under Bell's proposal, its satellite system would be available to all U. S. international communications common carriers—either through lease or ownership arrangements for any services authorized by the FCC.

Foreign Participation—Foreign ground terminals of the system would be owned by foreign communication agencies. Equitable arrangements would be worked out with them concerning ownership and use of the satellites.

Hardware—Bell would expect to obtain much of the equipment for its system on a competitive basis from other companies. It would expect to obtain rockets and launching services from private suppliers, under appropriate arrangements with the government.

Other Systems—Bell has no desire to pre-empt space. It does not wish to exclude other international carriers either from establishing satellite communications systems or from sharing use of the system it proposes.

No Subsidy by the United States government would be involved. The government would be reimbursed for any expenditures involved in the launchings.

Overseas telephone calls have nearly quadrupled in the last decade. There were slightly over a million of them in 1950. There were nearly four million in

1960. They were transmitted by short-wave radio throughout the world and by cables linking the continental U. S. with the states of Hawaii and Alaska, as well as Great Britain, France, Puerto Rico, and Cuba. The Bell system and its foreign partners have an investment of some \$275 million in overseas facilities.

AT&T reports that telephone traffic overseas is growing tremendously. Conversations are increasing about 20 per cent every year. Meanwhile, there is an ever-increasing call to provide more facilities for data transmission and other special services and the demand for overseas television is building up.

"The Bell system is building additional undersea cable systems to handle the current demand. Cable will be an integral part of overseas communications for decades to come. But satellite communications systems promise facilities at lower per circuit costs than cable. They will also be able to handle television and high-speed data, which cannot be furnished with present cable design.

"What is needed are large-volume systems capable of supplementing present



JUNE 22, 1961

systems and providing those services which require a wider radio band width than now furnished by cables. Satellite systems promise to meet this need. They can provide circuits over which can be sent large numbers of phone calls, plus high-speed data and television signals. Such systems would be, in effect, an extension of the microwave radio system used in overland communications today."

Bell's high altitude synchronous satellite system calls for very few active satellites orbiting at an altitude of more than 22,000 miles. While offering promise for the future, such a system has several drawbacks at this time, including "the very great difficulty of placing such a satellite in proper orbit, maintaining it on station, stabilizing and accurately pointing its directional antenna. The technology to do all of these things satisfactorily may be several years away.

"a .6 second round-trip delay in signal transmission due to the satellite's extremely high altitude. This would be a material degradation of our telephone service. Naturally we do not wish to adopt any system that would result in furnishing telephone service which is inferior to that which we are now providing by our cables,"

The low altitude satellite system for world-wide operation, says AT&T, calls for up to 50 active satellites orbiting at from 2,000 to 8,000 miles. However, a working system between the U. S. and Europe, for example, could be operational with from 20 to 25 satellites.

The lower altitude of such a system makes it readily adaptable for telephone service. It also offers the greatest promise for early use.

The Bell System's Experimental Rôle

O^N January 19, 1961, the Federal Communications Commission assigned frequencies to Bell for use with an experimental satellite based on Bell's proposed system.

This experimental satellite can be put in orbit within a year of the time the government agrees to provide a launching vehicle.

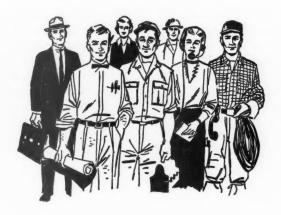
Such a vehicle would be launched entirely at Bell system expense. There would be no cost to the taxpayer.

In view of the need to proceed with this country's space communications program, Bell has urged that its plans for an experiment be supported by government provision of launching facilities, at Bell's expense.

Justice Department

HE Antitrust Division of the Justice Department is closely watching the studies and other activities of private industry in the field of international communications via space satellites. Included in the problem is the kind of business organization which would be necessary or desirable if the groundwork of the studies is to result in early implementation and action. The Lockheed Aircraft Corporation, which has an incidental interest in communications, although not as a carrier, has been collaborating in studies with RCA Communications, Inc., and General Telephone & Electronics Corporation, as well as other carriers. In January it conferred with the Antitrust Division to acquaint it with what was being planned and to obtain assurance that communications carriers might properly participate in such a joint study.

A ROUNDUP ON SPACE COMMUNICATIONS ACTIVITIES



In a letter of February 10, 1961, to Lockheed's attorneys, Acting Assistant Attorney General W. Wallace Kirkpatrick wrote that, on the basis of the representations made to the department, the latter would not institute criminal proceedings under the antitrust laws in respect to the proposed joint study. The letter added:

It is to be understood, however, that the department reserves the right at any time to test by civil proceedings the legality of the joint study, and to proceed either civilly or criminally, or both, against all or any of the parties participating in the joint study if there is involved in its actual operation any agreement or arrangement not presented as part of the submissions made in this matter which in our view violates the antitrust laws.

If a joint study such as you propose is undertaken, the Department of Justice should be kept informed of the nature and progress of the joint study, e.g., the parties participating, the areas which are being considered, and decisions reached by the joint study.

General Telephone

In its March 21st brief filed with the FCC (Docket No. 13522), the General Telephone & Electronics Corporation described the system designed by it and its subsidiaries, including Sylvania Electric Products, Inc. The corporation has studied three types of satellites proposed for communication relays—passive, low altitude repeater, and 24-hour synchronous.

It reports:

Our studies have resulted in a versatile global communications concept and a system which, by achieving the most efficient and flexible use of available channels, is most conservative of band width. The synchronous 24-hour stationary satellite is an essential element in the realization of this concept. Its use affords an opportunity for a completely new concept of channel sharing between the various ground stations concerned. The philosophy of the system visualized differs radically from that of the submarine cable in that a high degree of flexibility of channel utilization is obtained among all the ground stations in widely diverse geographical locations.

TEC's concept allow multiple acess to the satellite. The plan of operation provides that channels be allocated to customer common carrier companies only as there is a demand for service. Channel selection is automatically made through a special control channel. On a demand for service, an idle channel is selected and automatically routed from the calling to the called ground station. Hence any particular channel may at one moment be selected for use between terminals A and B, for example; at another instant this same channel may be selected for use between entirely different terminals, perhaps C and D, or by a different common carrier. Thus, it is completely unnecessary to allocate specific channels to individual terminals.

GTEC is working on several methods to permit each ground station to have access to every channel within the total assigned spectrum. Each ground station would have to have only the equipment needed to handle its traffic demands, and at the same time be permitted to send and receive on any idle channel.

By using this concept, GTEC states as follows:

- (a) Each ground station will be capable of communicating with every other ground station.
- (b) Each two-way communications channel through the satellite may be used by any pair of earth terminals.
- (c) Channels will be allocated to customer common carrier companies only as the demand for service requires.

BLOCKS of channels or individual channels can also be conveniently leased by the several common carrier companies. This service of leased channels is in addition to the concept of "demand service" and would serve the special requirements which may arise for government and defense needs.

GTEC claims a number of advantages for its proposed concept of operation:

- (a) It provides the most efficient and flexible utilization of the available channels and hence is most conservative of spectrum space.
- (b) It results in lower cost of service because of more efficient use of channels and consequent lower capital expenditure.

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- (c) It anticipates the use of the facilities for various types of data traffic which will require different widths of broad-band channels.
- (d) It automatically accommodates changes in traffic density over the 24-hour period due to the dispersion of communication centers over the various time zones.
- (e) It permits billing to be accomplished on a message-rate basis since, under the demand service concept, it is unnecessary to allocate specific channels between individual terminals. Thus, each country or carrier pays only for its actual use.
- (f) It economizes on ground station investment since each ground station requires only that equipment sufficient for its traffic demands. This is of particular significance to the development of communication facilities in underdeveloped countries.
 - (g) It is the plan most compatible

A ROUNDUP ON SPACE COMMUNICATIONS ACTIVITIES

with the ultimate concept of global direct distance dialing.

(h) It provides for the selection of alternate routes by switching equipment at the ground stations which have complete command of all channel facilities through the satellite.

(i) It is compatible with the ultimate concept of channel switching on the satellite for even greater flexibility.

(j) It is compatible with the ultimate concept of channel switching between satellites to shorten the propagation delay by eliminating successive ground hops.

GTEC recognizes that the delay due to propagation and the presence of echoes are problems associated with voice communication via satellite, but it is confident these problems can be solved.

General Electric's Study

A GENERAL ELECTRIC study has concluded that by 1970 "the heaviest communications traffic will still be between North America and Europe but North America to South America and other routes throughout the world will also have become significant. Any new system must be global and not favor a particular area of the world.

"For a world-wide system with 18 terminals, it was estimated that the required investment would be about \$280 million for a satellite system *versus* about \$475 million for a cable system. Aside from financial, the advantages of a world-wide system were deemed so great that the satellite system appeared both feasible and desirable.

"The satellite telecommunication system proposed by GE would be a 'Common Carrier's Common Carrier.' It would be operated as an independent international communication system serving and linking the already existing communication carriers throughout the world.

"The GE-proposed telecommunication satellite system is primarily an international system but can provide telecommunication service between areas on the same continent. The primary purpose of the satellite system should be to provide world-wide interconnecting facilities for existing national telecommunications networks. Initially, these international trunk circuit facilities will be capable of handling the following kinds of telecommunications: (1) telephonic, (2) full-duplex telegraphic, (3) half-duplex telegraphic, (4) photo transmission, (5) facsimile transmission, (6) business machine data, and (7) wide-band audio. Although video signal transmission probably is not a significant load for the initial system, it will probably increase very substantially."

THE GE system would employ ten satellites, orbiting in controlled, equally spaced intervals. Each satellite



JUNE 22, 1961

would fly in a nominally circular, equatorial orbit at a height of 6,000 nautical miles. The system would be launched in an easterly direction, preferably from a site near the equator.

The satellite relay would be an active repeater. There would be four receiver-transmitter packages per satellite. Ultimate lifetime of the satellite equipment would be at least five years. The satellite vehicle would employ an active orbit control system that would have a minimum functional life of two months, and would be capable of positioning the satellite on station within a one-month period. The drift over a five-year period would not exceed one degree per year.

The power supply would be a photo-voltaic generating system operating from solar power and a battery storage system. The satellite relay would have the capacity to handle 600 two-way telephone channels. The ground terminals would be constructed in three sizes to handle various communication traffic loads.

GE's proposed system is designed for telegraph, graphic, telephone, data, and TV relays.

In a March 1st press release General Electric said:

The most attractive features of the system to foreign nations are believed to be the simplicity and low cost of the proposed ground stations, and the international frequency sharing possibilities. General Electric also believes that maximum telecommunication growth can be achieved, both by existing major international carriers and by carriers of underdeveloped nations, by a satellite system designed specifically for balanced international accessibility

and use, rather than a system designed to perform as merely an extension of the present cable and radio networks.

International Telephone & Telegraph

THE International Telephone & Telegraph Corporation is another company preparing for space communications via satellites. Missile Design & Development for March carries a Q and A interview with IT&T Vice President and General Technical Director Henri Busignies, from which we quote briefly:

Q. Who do you think will launch the first satellite?

A. NASA indicated its intention to do so. And, in so far as we at IT&T are concerned, we are quite ready to participate in any experimental program of satellite communications.

Q. Have you budgeted for this?

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A. Yes, we have already started substantial expenditures. For example, at our laboratories at Nutley, we have installed a complete 40-foot tracking antenna that can follow any communications satellite in space; also a 10-kilowatt transmitter and a sensitive receiver. We have received a license from the Federal Communications Commission-the first such issued in the commercial communications band -to experiment with satellite communications. At this moment, we are considering the installation of a similar space radio station somewhere else in the world in order to communicate with the one we have here. We have also planned a mobile unit to communicate experimentally with the station at Nutley. This will be trailer mounted and shipped to different parts of the world.

A ROUNDUP ON SPACE COMMUNICATIONS ACTIVITIES



Q. Who will supply the launching boosters for commercial satellites? Who will pay for them?

A. At present, launching boosters are completely allocated to government projects. It is expected, then, that the first experiments for commercial communication satellites will be carried out with government-supplied boosters. NASA has advanced a program to launch a commercial communication experiment some time in 1962. NASA has also offered to supply boosters and to launch these for private industry at cost. It is certainly expected, as the communication-satellite system develops, that private industry operating such a system will pay for the boosters and launching costs out of the revenue derived from the system. In the beginning, in other words, it's entirely probable that the government will co-operate with industry-thus facilitating launching and paying for costs. Later, it should be on a self-sustaining basis.

Q. Should industry have its own launching complex?

A. The government probably will participate in the beginning on an experimental system. Facilities would be rented or leased from the government in the beginning, but once we have passed the experimental stage and we know better how the booster behaves and how the satellite behaves, it will be preferable for industry to take responsibility for the whole project.

Q. What government clearances does private industry need in order to get into the commercial communications satellite business?

A. It is fairly clear that the FCC must grant a license to transmit on a particular frequency and to occupy some portion of the spectrum, FCC would also have to approve the carrier. In addition, clearance with the State Department would be required for international agreements. Negotiations are necessary with NASA, at least for the present, for assignment of boosters, and with the Defense Department for launching permission. It is possible for a private company to purchase rockets, but the launching of these rockets will undoubtedly continue under close scrutiny and regulation, since the rocket-launching facilities and the use of these rockets are potentially dangerous

to people and property in the vicinity of launch and beneath the trajectory.

Q. Will a world-wide communications satellite system be a one-company program, many companies supporting one program, or several companies operating several independent systems?

A. Undoubtedly, the establishment of an international satellite communication system will involve the governments and companies of many countries. Here in the U. S., it is expected that private industry will be franchised by the FCC to operate such a system. A communications common carrier, or group of companies working with other suppliers and the federal government, should carry this program. This company or group, in turn, with the assistance of the State Department, would negotiate agreements with the publicly owned and operated overseas communications systems.

Other Countries Interested

AMERICAN developments relative to communications satellites have aroused great interest abroad. Many countries would like to participate in such a system, as well as in its development,

but financing is a considerable problem. Overseas research on this is still in an early stage.

Britain and France have agreed with NASA to co-operate by erecting ground stations on their own soil. Germany and Japan, among others, are showing keen interest, but have no projects of their own afoot. Europe has much scientific talent to contribute.

Earlier this year, under British leadership, it was sought at Strassbourg to organize an independent, co-operative European group to pool resources for space exploration, including communications; but no agreement was reached.

What the Communist countries may be doing or contemplating as to space communications is not known. Russia is always cool to international co-operation. At the 1959 Geneva Conference, Russia gave the impression that it was not far advanced on the electronics aspects of space communication—as distinct from the launching aspects.

By the time of the 1963 conference of the International Telecommunications Union, communications satellites are sure to be a major topic on the agenda.

"THE warning signals are flying for the members of the public who are trying to make a gambling casino out of the securities business. It is only a question of time before many of them lose their shirts. But probably the majority of individual investors are not falling into that category. Individual ownership in the equities of sound American enterprises is still a good principle as long as the investors are in a good position to appraise the real value of the stocks, or are in a position to obtain respectable advice. And if the advice shows signs of being based on the 'get-rich-quick' principle, it frequently is neither sound nor respectable."

—HAROLD DORSEY, Investment analyst and president, Argus Research Corporation.

Financial News and Comment

By OWEN ELY

The Debate over Growth Utilities

The Institutional Services Department of Francis I. du Pont & Company has recently prepared a 24-page special report on "The Growth Utilities Debate." The company expresses its confidence in sustained strong demand for electric power, marked by continued regional divergencies in this trend, but invites reappraisal of what appear to be certain excessive price-earnings ratios for a regulated industry in the light of political and social intangibles that could create a less favorable environment for such issues over the years ahead. The study took its cue from the November elec-

DEPARTMENT INDEX	_
	Page
The Debate over Growth Utilities	923
Electric and Gas Utility Security Of- ferings in May	925
Chart—Range of Yields on Utility Securities 1910-61	927
Outlook for Bond Market Somewhat Uncertain	928
REA 2 Per Cent Money Available to Private Utilities?	929
New Ten-year Nonredeemable Bond Provision	929
Tables—Financial Data on Gas, Tele- phone, Water, and Transit Stocks 929, 930	, 931



tions and resulting indications of more liberal political trends.

With the very high price-earnings utility equities in mind, it deals essentially with this proposition: "How might the new administration's stated intentions in the direction of 'conservation and resources development' affect the growth potential of the private electric light and power companies? Would this element find reflection in any diminution of the more liberal postwar attitudes of state regulatory bodies, notably in the areas served by the outstanding price performers among the growth utilities?"

REGARDING the general background of the growth utilities—which became a separate market group only around the mid-1950's-the study agrees that electric stocks in general have well earned their reputation for being recession proof, based on their performance in each of the four postwar recessions. (The occurrence of another "Big Depression" seems improbable.) But granting this favorable factor, the study expresses concern because apparently excessive price-earnings ratios in a regulated industry seem to take for granted (1) a 1961-70 regulatory climate as favorable as that of 1948-60, and (2) no risk of another major war, despite the current disturb-

ing international scene, that would demand all-out U. S. mobilization.

The study sketches the action of electric utility stocks during the hectic 1920's, and in the highly regulated 1930's and later wartime period. The earned rate of return dropped from around 7 per cent in 1929 to about $5\frac{1}{2}$ per cent in World War II, although the latter rate was somewhat offset by the low cost of senior funds due to Washington's cheap money policy.

After the war many of the present growth utilities had emerged from holding company structures with thin equities, following the substantial write-offs required by the SEC in many cases. Their need for more equity money and the rate increases required to accomplish this came to be recognized by the regulatory agencies, so that numerous rate applications were made and acted on favorably around 1948 and thereafter. While utility stock prices had slumped more than the industrials from early 1946 to early 1948, their long postwar rise started around the end of that year, resulting in the present relatively high P-E ratios, widely divergent on a regional basis.

Now there is a lively debate as to whether holdings of the "high PER" electric growth utilities should be sold, or at least cut back—while some analysts continue to urge their purchase. To invest its own recitation of facts and opinion with greater objectivity, the study quotes from a number of articles pro and con which have appeared in financial services, newspapers, and trade magazines in the past year or so. The analysis then proceeds to develop its thesis along these lines:

(1) Relative market performance of the growth utilities.

- (2) Economic setting for the industry.
 - (3) Political climate for the industry.
- (4) A special survey of industry/-economists' opinion.

From the angle of market performance, the growth utilities' average compiled by F. I. du Pont is compared as to price, price-earnings, and yield changes with the Dow-Jones utility and industrial averages and the Moody 24-stock utility average.

The logarithmic chart on Page 7 of the report highlights the more rapid advance of the du Pont index as compared with the other three, except since last October when the three utility averages have made a more even showing, slightly better than that of the Dow industrials.

ROWTH utilities, as the study's charts G and tables bring out, have enjoyed higher average price-earnings ratios than the stocks in the Dow-Jones industrial average throughout 1951-60; and while in 1958 the latter nearly closed the gap, thereafter the growth utilities steadily widened the differential. As to yields, the growth utility average in 1951 yielded nearly 6 per cent, only exceeded by the Dow-Jones industrial average; but in the following year the growth group had the lowest yield of the four averages and has remained in that position, widening the gap more or less steadily through 1960.

Turning to the economic setting for the debate, the du Pont study lists the 1950-60 average annual compounded growth rate for various economic factors and utility sectors and also projects estimated growth rates for the coming decade, as follows:

FINANCIAL NEWS AND COMMENT

	Con	age Annual npounded of Growth
	1950-60	1960-70 Est.
Gross National Product	5.8%	4.5%
FRB Manufacturing Index	3.6	3.0
Population		1.7
Households	1.9	1.8
Installed Kw. Capacity	7.3	6.8
Total Kwh. Sales	9.0	7.7
Residential Sales	10.8	9.0
Commercial Sales	8.5	8.6
Industrial Sales	8.7	7.3
Rural and Other Sales	5.4	4.0
Residential Customers	3.3	2.2
Kwh. Sales Per Residen- tial Customer	7.5	6.7

The foregoing figures are from a more detailed exhibit presented in the study. The projection of GNP is based on an estimated annual increment of 13 per cent for population and 13 per cent for the standard of living (in constant dollars), plus 1 per cent for inflation, or a total of 4½ per cent. Factors in the growth of residential kilowatt-hour sales (9 per cent per annum) are based on the following generally accepted factors: population rise, household for-

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ELECTRIC AND GAS UTILITY SECURITY OFFERINGS IN MAY

	Amount (Mill.)		Price To Public	Under- writing Spread	Offer- ing Yield	Aver. Yield For Securities Of Similar Quality	Moody Rating	Success Of Offer- ing
		Bonds and Debentures						
5/4	\$15	Washington Gas Light Ref. (s.f.) 47s 1986	100.36	.85C	4.85%	4.51%	A	a
5/10	30	Peoples Gas Light & Coke 1st	100.37	.73C	4.60	4.37	Aa	_
5/12	7	(s.f.) 4\frac{1}{8}s 1986*	101.25	.97C	4.92	4.78	Baa	a d
5/16	12	Arkansas Power & Light 1st 47s 1991	102.47	.82C	4.72	4.53	A	đ
5/16	75	Tenn. Gas Transmission Deb.						4
5/17	25	(s.f.) 5\(\frac{1}{8} \)s 1981*	100.00	1.15N	5.13	4.78	Baa	a
	23	4§s 1991	102.05	.76C	4.50	4.38	Aa	d
5/18	6	Mississippi River Trans. S. F. Deb.	100.00	1.00N	5.00	4.78	Baa	đ
5/18	10	5s 1981*			3.00	4.70	Dda	u
		4§s 1991	100.89	.79C	4.57	4.38	Aa	d
5/19	9	Interstate Power 1st 44s 1991	101.19	.90C	4.80	4.53	A	d
5/23	30	Ohio Edison 1st (s.f.) 44s 1991.	101.61	.85C	4.65	4.38	Aa	d
5/24 5/25	30 40	Michigan Cons. Gas S. F. 51/s 1986 Consolidated Natural Gas Deb.	101.77	.80C	5.00	4.54	A	a
		(s.f.) 4\frac{1}{2}s 1986	100.73	.82C	4.70	4.28	Aaa	d
5/26	15	New Orleans Public Service 1st 5s 1991	100.93	.86C	4.94	4.54	Α	d
							Earns Price Ratio	
		Common Stock—Offered to Stockhol	ders					
5/1	3	Washington Natural Gas	29.00	-N	3.45		5.0%	ь
5/3	1	Northwestern Public Service	25.25	.24C	4.75		6.1	a
5/18	4	Interstate Power	22.00	.08N	4.32		5.4	-
5/23	16	Arizona Public Service	32.50	-N	2.22		3.3	-
		Common Stock—Offered to Public						
5/18	_ 1	Upper Peninsula Power	35.00	1.75N	4.86		6.1	b

^{*}Nonrefundable for about five years. C—Competitive, N—Negotiated, a—It is reported that the issue was well received, b—It is reported that the issue was fairly well received, d—It is reported that the issue sold slowly.

Source, Irving Trust Company

mation increase, rising standard of living, mechanization and automation, and accelerating research and development outlays.

More specifically, in support of a strong residential and commercial load growth, the study comments:

Sales per residential and rural customer in the Northwest already approximate 10,000 kilowatt-hours, Airconditioning and other low-saturation equipment and appliances for home and office are strong plus factors for the years ahead. Schools, hospitals, and similar rapidly increasing public service facilities demand more and better lighting. In a special category is the "all-electric home." Whether it incorporates resistance heating or the heat pump, such an establishment will use 25,000-30,000 kilowatt-hours. We should see some 800,000-900,000 such homes by the end of this year. Let's say by 1970 we have 4 million-5 million —that market of 110 billion-135 billion kilowatt-hours would itself equal the total annual average residential load for the years 1954-59.

HE du Pont study then turns to the admittedly far more difficult area of evaluation, the political environment. It again recalls that the unfavorable conditions prevailing in the 1930's and 1940's were followed by an improved attitude around 1948, with the growth utilities the principal beneficiaries of the change. While the industry continues to earn around 6 per cent over all, regional variations range from about 5½ per cent to 7½ per cent. The Middle Atlantic and northeastern areas, with strong labor unions and big urban centers with their political influence, are at the low end, while the South runs around 61 per cent to 7½ per cent and the Southwest 7 per

cent to 8 per cent. (*Editor's note*: Checking with the author, we learn that "Southwest" in this study is more or less confined to Texas.)

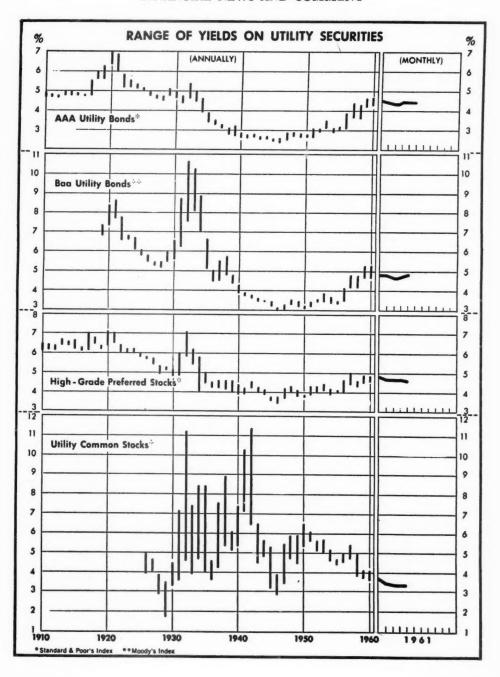
Summary results of Francis I. du Pont & Company's poll of top utility company executives are of interest: Most officials saw no recent indications of a less favorable regulatory climate in states where growth utilities are located, but one reply cited the recent decisions in the Northern Natural Gas and Panhandle Eastern Pipe Line cases as raising some doubts on this point.

There was a general "feeling" that the rather wide gap in rates of return between different areas would in time tend to narrow so that eventually 6 per cent or somewhat more might prevail over wider areas. This is a fundamental premise of the Francis I. du Pont & Company study. Its implications for the high PER utilities are obvious.

REGARDING possible public power encroachments, the consensus was that this has become a more negative influence and that while it does not pose any near-term threat, neverthless it requires a closer watch on future developments in the regions most likely to be involved. (See Page 1, Wall Street Journal of May 25, 1961, on this point.)

On the subject of P-E ratios of 25, 30, and higher for electric utility equities, the predominant view was that these are too high, even granting projections of superior economic growth and rapidly increasing demand for power in favored areas. The study reported that industry executives and utility economists in the main took this position—as did a number of utility analysts. One comment was quoted as follows: "I think the financial community's original promotion of certain utilities as 'growth stocks' created a 'fad' that

FINANCIAL NEWS AND COMMENT



accounts for several overvalued 'notches' on their PER's."

As to risk of tighter regulation in the future, the study urges closer attention to "straws in the wind" in Washington, and quotes as follows from a recent *New York Times* editorial:

Recent suggestions in some quarters that a public utility security may be a "growth stock" promising very sharp future rises in earnings and dividends per share must cause some eyebrow raising. One wonders whether proponents of such ideas have given adequate attention to the public's right to share technological progress in these industries through lower rates if such should be possible in the future, while assuring reasonable, but not exorbitant, returns to invested capital.

THE report proceeds to suggest standards for cutting back holdings of the "highfliers" among growth utilities and reinvestments for same. Whether one agrees with the study's position or not, it is a rational contribution to a currently important topic.

In the present ebullient spirit of the equities market, one would like to see more studies of this sort.

Outlook for Bond Market Somewhat Uncertain

As indicated in the various scheduled new utility offerings, there is a fairly heavy backlog of proposed senior financing over the next few months. Yields in the new issue market seem to be creeping up a bit as reflected in the 5.10 per cent yield to the public (5.17 per cent cost to company) on the \$12 million Pennsylvania Electric debentures, awarded recently to First Boston Corporation and associates.

Government issues have been easier, perhaps due to the forthcoming \$1.8 billion financing, and the municipal market has also declined for several weeks, losing earlier gains.

FRB Chairman Martin, in his recent testimony before a congressional committee, stated that interest rates would tend to rise if business keeps getting better and that the Federal Reserve System could do nothing to stop them—although a continued policy of credit ease might retard the advance.

Martin declined to tell Democratic members of the committee how long the Fed's current policy of easier credit might continue and again emphasized that it would not try to peg interest rates as was done years ago to provide "cheap money." (No one in the Kennedy administration had requested such a pegging operation, he said.)

PRESIDENT Kennedy had recently indicated his feeling that interest rates should at least trend downward, since "to increase them would choke off recovery." The administration's view appears to be that interest rates should be lowered, and credit ease maintained, as a business stimulant until unemployment is reduced from the recent level around 7 per cent to about 4 per cent, which has apparently been selected as a "norm." In reply to a question on this point Mr. Martin stated: "I think you are wrong in relating monetary policy and unemployment. To put people back to work, we've got to have more than cheap money." In this connection he praised the President's proposals for retraining unemployed workers, helping depressed areas, etc. However, he apparently did not feel that the recent cut in mortgage interest rates would spur home building in areas where there already is a surplus of houses.

FINANCIAL NEWS AND COMMENT

REA 2 Per Cent Money Available to Private Utilities?

THE old saying, "If you can't lick 'em, join 'em," would seem to apply to investor-owned utilities which take advantage of the availability of REA 2 per cent money for the development of rural facilities. Central Louisiana Electric Company carries in its consolidated balance sheet for December 31, 1960, a debt item of \$4,506,480 "First Mortgage Notes, 2 Per Cent, Payable to U.S.A., Due 1962-1995."

The money was obtained by a wholly owned subsidiary, Louisiana Rural Electric Power, from the Rural Electrification Administration. The company has apparently been borrowing the 2 per cent

money since 1951 or earlier—in that year \$830,950 had been borrowed.

New Ten-year Nonredeemable Bond Provision

It has become increasingly the custom to improve the prospects for sale of new bond issues to insurance companies and other institutions by making them nonrefundable for five years. In the list of electric and gas utility offerings in the month of May, three issues were nonrefundable for five years. But the recent issue of \$250 million American Telephone and Telegraph debentures "will not be redeemable prior to June 1, 1971," according to the prospectus—apparently the first issue with such a ten-year provision.

3

FINANCIAL DATA ON GAS UTILITY STOCKS

Approa Revenue (Mill.)	2.5		31/61 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earns.	Per Cent I In Share Recent 5-	Earns.	Price- Earn. Ratio	Div. Pay- out	Approx. Common Stock Equity
		Pipeline and Integrated Co	om pan	ies							
\$ 7	0	Ala, Tenn, Nat. Gas	28	\$1.20	4.3%	\$1.57Ma	-	7%	17.8	77%	42%
240	S	American Nat. Gas	97	3.00	3.1	5.36Ma	17%	7	18.1	56	38
114	A	Arkansas Louisiana Gas	41	1.00	2.4	1.55Ma	D12	46	26.4	64	45
65	O	Colo. Interstate Gas	41	1.25	3.0	1.98Ma	15	13	20.7	63	27
517	S	Columbia Gas System	26	1.10	4.2	1.59Ma	13	8	16.4	69	40
23	0	Commonwealth N. G	31	1.10	3.5	1.75De	7	6	17.7	63	55
363	S	Consol, Nat. Gas	56	2.30	4.1	2.89Ma	D9	2	19.4	80	63
505	S	El Paso Nat. Gas	27	1.30g	4.8	1.46De	10	4	18.5	89	21
59	S	Equitable Gas	41	1.85	4.5	2.32Ma	D4	3	17.7	80	45
47	O	Houston N. G	33	.80	2.4	1.67Ja	21	20	19.1	48	21
25	O	Kansas Nebr. Nat. Gas .	33	1.04	3.1	1.82Ma	D1	10	18.1	57	39
131	S	Lone Star Gas	27	1.00	3.7	1.18Ma	D5	2	22.9	85	52
85	S	Miss. River Fuel	40	1.60	4.0	2.30De	D6	3	17.4	70	52
32	S	Montana Dakota Util	36	1.20	3.3	1.95Ma	D10	6	18.5	62	31
33	S	Mountain Fuel Supply	37	1.40	3.8	1.90Ma	_4	5	19.6	74	49
113	S	Nat. Fuel Gas	27	1.20	4.4	1.76Ma	D2	4	15.3	68	54
188	S	Northern Nat. Gas	40	1.40	3.5	2.14Ma	_ 5	5	18.7	65	33
43	S	Oklahoma Nat. Gas	35	1.40	4.0	, 2.06Ma	D6	5	17.0	68	34
140	S	Panhandle East. P. L	43	1.80	4.2	3.05De	D9	4	14.1	59	43
239	S	Peoples G. L. & Coke	79	2.60	3.3	4.57Ma	14	9	17.3	57	42
35	O	Pioneer Nat. Gas	29	.88	3.1	1.25De	D10	6	23.2	70	40
143	S	Southern Nat. Gas	46	2.00	4.3	2.27Ma	14		20.2	88	36
55	O	Southern Union Gas	31	1.12	3.6	2.00De	33	4	15.5	56	30
555	S	Tenn. Gas Trans	24	1.12	4.7	1.39Ma	18	12	17.3	81	28
317	0	Texas East. Trans	19	.80	4.2	1.07De	26		17.7	75	11
133	S	Texas Gas Trans	36	1.50	4.2	2.33Ma	D7	10	15.5	64	26
171	0	Transcont, Gas P. L	24	1.00	4.2	1.15Ma	3	6	20.9	87	21
389	S	United Gas Corp	36	1.50	4.2	2.25De	D1	2	16.0	67	42
		Averages			3.8%		4%	8%	18.5	70%	
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929

JUNE 22, 1961

Approx. Revenues (Mill.)	(Continued)	5/31/61 Price About	Divi- dend Rate	Approx.	Recent Share Earns.	Per Cent In Shar Recent	Earns.	Price- Earn. Ratio		Approx. Common Stock Equity
	Retail Distributors									
\$ 40 S	Alabama Gas	. 34	\$1.60	4.7%	\$2.34Ma	D4%	_	14.5	68%	33%
68 O	Atlanta Gas Light	. 57	2.00	3.5	3.79Ma	45	9%	15.0	53	44
3 0	Berkshire Gas		1.00	5.3	1.09F	D10	5	17.4	92	42
8 A	Bridgeport Gas	. 33	1.68	5.1	2.22Ma	17		14.9	76	54
6 0	Brockton-Taunton Gas .	. 25	1.06	4.2	1.54F	20	14	16.2	69	41
96 S	Brooklyn Union Gas	. 36	1.20	3.3	*1.57Ma	*D11	* 5	*22.9	76	43
15 O	Cent, Indiana Gas	. 18	.80	4.4	.78Ma	D11	_	23.1	103	58
7 0	Chattanooga Gas	. 6	.30	5.0	.52F	73	5	11.5	68	54
18 O	Elizabethtown Cons. Ga		1.80	2.9	3.41De	17	9	18.2	52	79
77 O	Gas Service	. 38	1.72	4.5	2.10Ap	D29	8	18.1	82	35
9 0	Hartford Gas	. 55	2.40	4.4	2.40Ma	20	8	22.9	100	53
3 0	Haverhill Gas		1.60	5.3	1.96Ma	D1	7	15.3	82	55
23 O	Indiana Gas & Water	26	1.00	3.8	1.55Ma	2		16.8	64	44
62 S	Laclede Gas	33	1.05	3.2	1.60De	27	5	20.6	66	38
9 A	Louisiana Gas Serv	. 19	.68	3.6	1.21Ma	1		15.7	56	48
8 O	Mich. Gas Utils		.60	4.0	.87Ma	D3	8	17.2	69	32
56 O	Minneapolis Gas	. 38	1.60	4.2	1.97Ma	D6	5	19.3	81	45
20 O	Miss. Valley Gas	26	1.20	4.6	1.83De	3	-	14.2	66	40
7 0	Mobile Gas Service		1.10	4.1	1.44Ap	D4	_	18.8	76	40
8 0	New Haven Gas	43	2.00	4.7	2.94De	D9	5	14.6	68	69
18 O	New Jersey Nat. Gas		.90f	4.6f	*1.57Ma	* 8	*11	*21.7	57	34
130 O	Nor. Illinois Gas		1.40	2.5	2.32Ap	12	11	24.1	60	42
11 O	North Penn Gas		.65	4.6	1.18Je	28	7	11.8	55	65
23 O	Northwest Nat. Gas		.92	3.2	*1.62Ma	* 8	* 7	*17.9	57	34
364 S	Pacific Lighting		2.40	4.2	3.05Ma	1	5	18.7	79	39
15 O	Piedmont Nat. Gas		.50	2.1	.53De	D30		30.1	94	23
2 0	Portland Gas Lt		r	_	1.33De	D31	4	15.8	-	29
12 A	Providence Gas		.56	5.1	.63De	D3	2	17.5	89	48
4 A	Rio Grande Valley Gas .		.16	2.0	.29De	D10	7	27.6	55	46
6 0	So. Atlantic Gas		.90	5.0	1.35De	55	8	13.3	67	29
18 S	So. Jersey Gas		1.10	2.5	1.48Ma	10	14	30.0	74	53
38 S	United Gas Impr		2.40	3.8	3.48Ma	3	10	18.1	69	50
71 S	Wash. Gas Light	69	2.40	3.5	4.18Ma	7	5	16.5	53	38
20 O	Wash, Nat, Gas		1.00	3.2	1.52Ma	D6	14	20.4	66	37
13 O	Western Ky. Gas	22	.80x	3.6	1.42Ma	D8	11	15.5	56	36
60 O	Western Power & Gas	27	1.00	3.7	1.50Ma	3	8	18.0	67	17
	Averages			4.0%		5%	6%	18.5	65%	
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FINANCIAL DATA ON TELEPHONE, WATER, AND TRANSIT STOCKS

Approx Revenue (Mill.)	2.5		5/31/61 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earns.	Per Cent In Share Recent 5	Earns.	Price- Earn. Ratio	Div. Pay- out	Approx. Common Stock Equity
	_	Communications	100	40.404	2.00	IAT FOR	F. ext	For	1010		4444
\$7,920	S	American T. & T. (Cons.)		\$3.60h		†\$5.56F	5%	5%		65%	
405	A	Bell Tel. of Canada		2.20	4.1	2.51De	5	_	21.5	88	58
54	O	Cin. Sub. Bell Tel		4.50	4.2	5.89De	6	2	18.2	76	77
317	A	Mountain States T. & T		.90	2.5	1.16F	D9	3	27.6	78	74
405	A	New Eng. T. & T		1.90	3.9	2.38Ma	6	7	20.6	80	56
1,135	S	Pacific T. & T.		1.14	2.8	†1.39F	D8	3	*29.5	82	61
136	0	So, New Eng. Tel	. 53	2.20	4.2	2.61De	4	6	20.3	84	66
		Averages			3.5%		1%	4%	22.8	79%	
		Independents									
\$ 4	0	Anglo-Canadian Tel	48	\$1.20	2.5%	\$3.39De	D1%	15%	14.2	35%	49%
59	Õ	British Col. Tel		2.20	4.3	2.78De	D9		18.3	79	27
4	ŏ	Calif. Inter. Tel		.70	3.5	.85De	12	NC	23.5	82	24
28	ŏ	Calif. Water & Tel		1.36	3.8	2.29Ma	14	5	15.7	59	44
25	ŏ	Central Tel,	20	.88	3.3	1.61De	3	4	18.0	55	34
JUNE	22,	1961			930						

FINANCIAL NEWS AND COMMENT

Approx. Revenues (Mill.)	•	(Continued)	/31/61 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earns.	Per Cent 1 In Share Recent 5-	Earns.	Price- Eern, Ratio	Div. Pay- out	Approx. Common Stock Equity
6 6 1,178 25 10 11 28 5 14 14 47 22	00S00AS00000S	Commonwealth Tel. Florida Tel. General Tel, & Elec, Hawaiian Telephone Inter-Mountain Tel. Puerto Rico Tel. Rochester Tel. Southwestern Tel. Southwestern St. Tel. Tel. Service of Ohio United Utilities West Coast Tel. Western Union	25 29 27 19 19 87 28 27 30 35 27 34 47	1.00 1.00 .76 .54 .80 1.80 1.00 1.28 .36z .80 1.36	4.0 3.4 2.8 2.8 4.2 2.1 3.6 3.7 4.1 1.0 3.0 4.0 3.0	1.56De 1.33Ma † .99Ma † .78Ma .92De 3.31De 1.79Ma 1.35De 1.65Ma 1.33De 1.20De 1.95Ma 1.80De	6 2 D13 26 19 71 23 25 9 21 23 D2 D31	8 8 3 1 15 1 2 5 9 7 5	16.0 21.8 †27.3 †23.1 20.7 26.3 15.6 20.0 18.2 26.3 22.5 17.4 26.1	64 75 77 69 87 54 56 74 77 27 69 78	35 38 42 42 54 44 31 39 39 34 39 40 82
\$ 51	S	Averages Water Companies Holding Companies American Water Works .	24	\$1.00	3.3% 4.2%	\$1.55Ma	11% D16%	5% 9%	20.6	64%	19%
13 10	000050000000	Operating Companies Bridgeport Hydraulic Callf. Water Service Elizabethtown Water Hackensack Water Indianapolis Water Jamaica Water New Haven Water Ohio Water Service Penn. Gas & Water Phila. & Sub. Water South. Calif. Water Southern Gas & Water	43 26 36 63 29 46 71 30 34 35 28 27	\$2.00 1.20 1.40 2.40 1.20 2.20 3.40 1.50b 1.40 .85v 1.10	4.1	\$2.35De 1.49Ap 1.46De *4.05De 1.68Ma 2.99Ma 3.49De 1.68Ma 1.76Ma 1.57Ma 1.58Ma 1.50Ma	D6 20 D4 D1 D5	3% 2 *2 1 1 1 -6 8 5 5	18.3 17.4 24.7 *15.6 17.3 15.4 20.3 17.8 19.3 22.3 17.7 18.0	86% 80 96 59 71 74 97 89 80 54 70	54% 31 64 34 32 29 55 32 33 30 28 19
\$ 21	0	Averages Transit Companies Baltimore Transit	10	\$.50d	4.2%	\$.52De	 D50%	3%	18.7	76% 96%	
11 68 323 38	OSSSOAOOSO	Cincinnati Transit Fifth Ave. Lines Greyhound Corp. Nat. City Lines Niagara Frontier Trans. Pittsburgh Rys. Rochester Transit St. Louis P. S. Twin City R. T. United Transit Averages	8 21 26 23 18 16 8 9	.40 1.00t 1.10a 2.00 .80 .30 .40 .80 1.00	5.0 4.8	.55De 1.07De 1.64De 1.73De 2.13De — .87De .53De 1.26De .63De	D40 365 — D22 190 — D20 D31 — D28 — 33%	10% 10 8 3%	14.5 19.6 15.9 13.3 8.5 9.2 17.0 10.3 9.5	73 93 67 116 38 46 151 87 111	55 65 70 94 75 90 100 94 65 53

A—American Stock Exchange, O—Over-counter or out-of-town exchange, S—New York Stock Exchange, Ja—Jamuary; F—February; Ma—March; Ap—April; My—May; Je—June; Jy—July; Au—August; Se—September; Oc—October; N—November; De—December, *Deferred taxes resulting from liberalized depreciation are not normalized, If normalized, the price-earnings ratio would be higher, and the rate of increase in share earnings would be smaller. †On average shares. D—Decrease, a—Also 10 per cent stock dividend October 24, 1960, b—Also 2 per cent stock dividend September 30, 1960, c—Also one-half per cent stock dividend October 31, 1960, d—Twenty-five cents paid thus far in 1960, payments irregular, e—Also 3 per cent stock dividend January 7, 1960, f—Regular annual 2 per cent stock dividend included in yield, g—Stock split 5-for-4 to stockholders of record October 11, 1960, h—Dividend rate of \$3.60 per annum to be established beginning with July 10, 1961, payment. i—Also 10 per cent stock dividend January 15, 1960, q—Indicated new rate after 8-for-1 split July 15, 1960, r—Three per cent stock dividend January 16, 1961, t—Payments irregular, \$1 paid in 1960. 50 cents thus far in 1961, v—Also 3 per cent stock dividend payable January 6, 1961 (similar dividend was paid January 7, 1960). w—Also 1 per cent stock dividend payable December 31, 1960. x—Also 12½ per cent stock dividend payable October 7, 1960, z—Plus 3 per cent stock dividend December 31, 1960. NC—Not comparable.

JUNE 22, 1961



What Others Think

State Utility Commissions Back Senate Bill to Amend Natural Gas Act

HEARINGS started recently before the U. S. Senate Commerce Committee on a bill to amend four sections of the Natural Gas Act. The first two days of testimony saw ten witnesses, either in person or through prepared statements, speak in favor of the provisions of the bill introduced by Senator Warren G. Magnuson (Democrat, Washington) at the request of the National Association of Railroad and Utilities Commissioners. Most of those speaking in favor of the measure were state public utility commission members or chairmen.

Magnuson's proposals, as contained in S 666, would: (1) outlaw indefinite pricing clauses, such as the favored-nation clause, the better market clause, and the spiral escalation clause, in natural gas contracts; (2) eliminate the prohibition in the act against suspension of rate changes applicable to natural gas sold for resale for industrial use; (3) prohibit consecutive rate increases resulting from the automatic operation of § 4(e) of the act which allows rate increases to go into effect if the Federal Power Commission has not made a final decision on the case within five months; (4) amend § 7(e) of the act to require the FPC, in passing upon an application for a certificate of

public convenience and necessity, to make a determination that the initial price is consistent with the public interest; and (5) prescribe procedural requirements in the hearing and disposition of cases before the FPC which would result in obtaining quicker decisions on pending rate increase cases.

Appearing before the Senate committee in favor of the majority of these proposals were Everett C. McKeage, president of the California Public Utilities Commission; Norman A. Johnson, member of the Mississippi Public Service Commission; Joseph F. Nigro, chairman of the Colorado Public Utilities Commission; David M. Brackman, member of the Massachusetts Department of Public Utilities; and Leonard Bessman, chairman of the Wisconsin Public Service Commission.

Submitting statements for the record were Governor Edmund G. Brown of California; Crawford L. Pilcher, chairman of the Georgia Public Service Commission; Joseph Sharfsin, chairman of the Pennsylvania Public Utility Commission; and Francis Pearson, chairman of the Washington Public Service Commission.

Natural gas producers and pipeline

companies are expected to appear early this month to oppose the bill. FPC Chairman Jerome K. Kuykendall also is scheduled to testify. He has already submitted a prepared statement outlining the commission's stand on the bill. Most Commerce Committee Senators seem to be op-

posed to the measure.

Governor Brown said that the bill would "effect long overdue reforms" and it received his "unqualified support." He stated that California's interest in the natural gas problem, which is a "national problem," arises because of a "staggering increase in the volume of natural gas imported into the state," and because the present Natural Gas Act, which allows for automatic consecutive increases in gas rates without determinations on their reasonableness by the FPC, has harmed California distributors and consumers of natural gas. Because of this, Governor Brown believed § 3 of the bill, barring repeated rate increases by automatic operation of the law, was "especially meritorious."

Testimony by McKeage

CKEAGE, pointing out that California probably imports more natural gas than any other state—close to 80 per cent of all natural gas consumed in the stateadvocated the effectiveness of all proposed changes in the act, especially since the FPC itself had sought several of the proposed changes.

He stated that the abolishing of the indefinite pricing clauses has long been advocated by the FPC and it has now undertaken to outlaw them. However, they should be prohibited by statute since the attitude of the courts on the commission's action is uncertain, he said. These clauses affect price increases without any relation to or causal connection with cost or value, McKeage testified, and are "special privilege, inflationary instruments which enrich natural gas companies at the expense of the consumer,"

The FPC has also sought for years, he continued, the change of § 4(e) which would strike the provision that prohibits the commission from suspending rate changes affecting natural gas sold for industrial use only. The amendment to the same section, which would prohibit consecutive rate increases, would not keep the FPC from placing into effect a filed rate increase, he explained, even though it did not pass on the reasonableness of such an increase, but would only restrict the automatic operation of the statute as is now the case.

Though some say that the amendment to § 7(e) is unnecessary in view of the U. S. Supreme Court's holding in the Catco case, McKeage believed the subject —to make it jurisdictional to the issuance of a certificate of public convenience and necessity that the FPC make a finding upon the consistence with the public interest of the price at which the gas i sold is too important to leave to the "insecurity of a judicial decision which could be changed at a later time."

INDER questioning, McKeage stated that the effort to speed up commission action by changing procedural requirements in hearings would "return the Natural Gas Act back to its original intent." He suggested increasing the size of the FPC and providing a larger staff.

In discussing the amendment to $\S 7(e)$, Senator Andrew F. Schoeppel (Republican, Kansas) asked McKeage if the commission had to consider the question of cost in a hearing, would it not become a "full-blown case." McKeage said that when the FPC has considered cost in the past it has not always gone into a "fullblown case." The Senator then asked Mc-Keage if the bill would "affect" the producers under the Natural Gas Act. Mc-Keage admitted it would "restrict" them.

Senator Mike Monroney (Democrat, Oklahoma), who is generally critical of the bill, questioned McKeage about the difference between the average wellhead price of gas imported into California as compared with the average price of the state's own production, and asked why the state commission was apparently quite eager to regulate prices of imported gas yet only in few cases was regulating gas production within the state itself.

Other Commissioners' Views

PILCHER did not appear, but in a prepared statement said that the multiple number of rate increases being filed by the pipeline companies serving Georgia and by the producer companies that were selling to the pipeline companies serving the state which had increase upon increase upon their rates, under bond, but which had not been heard, nor even scheduled for hearing, led to the effort to seek relief through these amendments to the act. He stated:

... There is no other utility with which I am familiar that is allowed to file rates without rhyme or reason and have them placed in effect, under bond, without any justification for the amount of the rate increase sought....

It has been reported that approximately \$600 million subject to refund, under bond, is now being collected from consumers of natural gas in the United States. According to figures released by the Federal Power Commission, some 40 per cent of the increases put into effect under bond have, in the past, been found improper and disallowed. This means that the natural gas ratepayers have had to furnish to the gas industry approximately \$240 million of money

that they should have not been forced to pay if the Natural Gas Act had provided for the determination of the reasonableness of a rate before being allowed to be placed into effect.

He added that industrial consumers of natural gas are not able to determine the lowest-cost fuel in the competitive market because of the fact that they will not know for up to three or more years what price will be charged for gas they have used in the distant past. Pilcher also stressed the need for hurrying up the cases before the FPC so that gas rates "may be made for the future and not for the past."

NIGRO said that the Colorado Public Utilities Commission "unqualifiedly endorses" the bill because of the "chaotic" condition growing out of the federal regulatory practices in gas rate proceedings. Although the bill is not a cure-all, he said. it will ameliorate the situation. He cited dockets of rate increases, filed by the Colorado Interstate Gas Company, in which there were long delays before a decision was handed down by the FPC, in which no decisions were ever reached after hearings, or which were never even set for hearings. Under the provisions of the act, permitting automatic consecutive rate increases, more than \$93.5 million was collected over a six-year period from Colorado ratepayers under these four dockets. All of this was subject to refund. By virtue of settlement agreements between the supplier and the parties, the company agreed that this sum was too high by \$54.-3 million; this amount was refunded. The effects of pyramiding rate increase upon rate increase is obvious, said Nigro.

The ratepayers of Colorado, at one time, had four pending rate cases, none of which had finally been settled, the increases under which, however, were all in force and effect. The ratepayer was compelled to pay rates, he added, that were more than \$53 million too high. The supplier, on the other hand, faced a contingent liability of more than \$93.5 million; no expansion could be planned, and its credit standing and financial stability were jeopardized.

After Nigro had stated that the speeding up of cases before the FPC was most necessary, Senator Schoeppel pointed out that the delay in receiving decision on cases before the commission had caused undue hardships for producers and pipelines, while Senator Ralph W. Yarborough (Democrat, Texas) worried about the "little, old widow" in Texas who owned only one well, said that it was the little producers who were getting "squeezed" while the local utilities and big pipelines remained satisfied. His remarks followed discussion of the amendment to eliminate the indefinite pricing clauses.

A Pennsylvanian's Testimony

UPPORT of the Pennsylvania commis-Sion was given to the bill by Sharfsin, who did not appear, but submitted a prepared statement for the committee. He pointed out the need for faster FPC action on hearings by noting that since 1957 13 pipeline companies which sell gas to Pennsylvania distributing companies have filed a total of 37 applications to the FPC for rate increases. Of these 37, 24 represented pyramided rate increases and three companies each have five applications pending at one time. The total direct impact on the distributing companies of the pyramided rate increases, he said, is about \$22 million a year, in addition to the impact of the companies' initial applications which totaled close to \$12.5 million a year.

However, he said, since one of the pyramided increases has been in effect for close to four years, one for more than two and a half, and five for two, the total amount collected subject to refund by these ten companies from the distributing companies is close to \$34.5 million. This is on top of about \$40 million in increases collected by these companies under their initial rate increase applications. In addition, the three companies which each filed only a single rate increase application have collected almost \$3 million subject to refund.

Hus, Sharfsin concluded, a total of \$77.5 million in increased rates has been collected over the past four years from the 50 Pennsylvania distributing companies purchasing gas from pipelines which are regulated by the FPC. However, if a provision similar to the proposed amendment, which would prohibit consecutive rate increases under the automatic operation of the present statute, had been in effect, the pipeline companies would not have been permitted to collect more than \$34.5 million in pyramided rate increases. This amount and all the other moneys collected subject to refund, he said, have provided the pipeline companies with funds which otherwise would not have been available to them except by embarking on financing at the money markets.

Sharfsin said that the evils inherent in rate pyramiding seriously impinge on the general interest and on the cost of living problems of many thousands of natural gas consumers in Pennsylvania.

JOHNSON testified that the chief problem in Mississippi has been the periodic pipeline increases placed in effect, under bond, by the United Gas Pipe Line Company which supplies a major portion of natural gas to industrial users and distribution companies in the state. The company had seven dockets pending before

the FPC, going back to 1956. Only a few months ago the commission made a decision in the first two cases, but these have been appealed and there is still no final adjudication. Johnson pointed out that the counsel for the FPC, in the Sunray Mid-Continent Oil Company case, confessed that no contested major producer's § 5 case had been finally settled by the commission in the six years since the Supreme Court's decision in the Phillips Petroleum Co. v Wisconsin case in June, 1954.

He remarked that these facts demonstrate an "intolerable situation." It means that industrial users and distribution companies are subjected to many and various hardships. They do not know if the rate increases will be held to be just and reasonable. He testified that industries in Mississippi are "quite concerned" over this situation. Increased rates are imposed upon industrial users who have no alternative except to pay the rates, and hope to get a refund. He added that industrial

development of the state has, to some extent, been retarded by the continuing increases in the cost of natural gas.

Under questioning, Johnson stressed the length of the time necessary to get final adjudication, the impossibility of making refunds, the excessive cost of doing so, and still not all those entitled to refunds receive them. He said the duty of a regulatory agency was to the consumer and to allow the utilities to make a fair profit. The full-blown rate cases on small producers are the ones that take time and hurt the small producers, he explained.

Senator Yarborough, in questioning Johnson on indefinite pricing clauses, said that making the favored-nation clause illegal would strip contracts of protection, especially for the small producers.

Other statements of commissioners, as well as opposition witnesses, will appear in the next issue of Public Utilities Fortnightly.

Notes on Recent Publications

Saline Water Report for 1960. The Department of the Interior has announced the publication of "Saline Water Conversion Report—1960." This publication contains a nontechnical review of the activities of the Office of Saline Water during the past year. A summary of the developments during that time on each of the several major processes on which research and development work was conducted is included, as is a report of the status of the department's demonstration plant program.

In a letter to President Kennedy, which accompanies the report, Interior Secretary Udall states that surveys are now under way to determine the specific requirements of an adequate program for

the conversion of saline water. He also stresses that, in the department's opinion, the program should continue on an expanded basis. In this connection he notes that at the conclusion of these studies the Interior Department will make specific recommendations to Congress.

The booklet contains some fine photographs of the various processes that are now undergoing study. Also included are a number of charts illustrating efficiency, cost, etc., of the various systems.

Saline Water Conversion Report—1960. United States Department of the Interior, pp. 135. Available free from the Office of Saline Water, United States Department of the Interior, Washington 25, D. C.

The March of Events



EEI Convention

THE twenty-ninth annual convention of the Edison Electric Institute opened on June 5th at the Waldorf-Astoria Hotel in New York city with approximately 3,500 leaders of the investor-owned electric utilities in attendance.

Sherman R. Knapp, retiring president of the EEI and president of Connecticut Light and Power Company, in his opening address warned that plans of the Department of the Interior, "if carried out, would constitute the highway to complete nationalization of our industry."

This same theme was echoed by two other speakers—Dr. Emerson P. Schmidt, director of the economic research department of the U.S. Chamber of Commerce. and Andrew Heiskell, chairman of Time, Inc. Dr. Schmidt told the group that "by 1970, governments will absorb over 40 per cent of our income unless we develop a firm concept of government and evoke articulate support for this view." Mr. Heiskell told the utility men that arguments against government power were weakest when they were confined to the areas where such power benefited the consumer most. Mr. Heiskell said that "when you think of all the industries that are sick, that need tariff protection and subsidies, that require the nursemaid's hand

of government to keep them going, you would think that the federal government would point to the electric power industry as a shining example of good business practices. So what does happen? Why, the government merely tries to compete with shareholder-owned power companies." He criticized the industry for its campaign against the proposed Colorado river storage project.

Knapp pointed out that the industry pattern has changed from one of mergers and acquisitions to one where electric companies must work with their neighbors. To meet future growth and take advantage of technological developments, he said the companies must "set up a logical, interconnected, integrated operating area of sufficient size to permit realizing optimum results."

The problem of growing a responsible and sufficient leadership for the future of the industry was the theme of Ralph M. Besse, president of Cleveland Electric Illuminating Company.

In the final session of the three-day meeting, Philip A. Fleger, chairman and president of the Duquesne Light Company of Pittsburgh, Pennsylvania, was elected president of the EEI, and W. W. Lynch, president of Texas Light & Power Company, Dallas, as vice president.

North Dakota

Rate Case Appealed

A^N appeal from a North Dakota Public Service Commission decision denying a rate increase to Otter Tail Power Company was filed with District Court Judge Douglas B. Heen in Devils Lake. The appeal will be heard when the commission certifies the records of hearings held last fall in Devils Lake and in Jamestown. The commission had thirty days in which to certify the record.

The commission's adverse decision was announced in February and a request for a rehearing was denied by the commission in April.

A similar appeal from a state commission decision was filed three years ago in district court in Jamestown but a decision has not yet been handed down. The company then decided to start court action on the new commission decision in order to base it on more up-to-date figures.

Vermont

Commission Bill Changed

A BILL to broaden the regulatory powers of the state public service commission was advanced in the state senate after being watered down by eight amendments.

One of the amendments provides that the commission's jurisdiction in seeking more stringent control over stock issuances by utilities will not extend to the New England Telephone & Telegraph Company. The measure, sponsored by Senator James Oakes of Windham, also contained several other compromise modifications. One of these provides that a company may commit itself for temporary indebtedness at up to 12 per cent of its total capitalization. Present Vermont law provides for 2 per cent.

Oakes opposed exempting the telephone company from the bill. He contended that all utilities should be treated similarly. Senator Harold Brown of Rutland said his state and court expenses committee, which recommended the modifications, favored the exemption because only \$50 million of the telephone company's \$956 million assets were situated in Vermont.

West Virginia

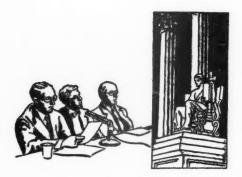
Court Refuses Rate Review

West Virginia's supreme court unanimously refused to review a case in which the state public service commission granted the United Fuel Gas Company only about half of a requested rate increase.

The commission order of last September 14th approved a rate increase amounting to \$2,121,000 in additional annual revenue from the company's 119,000 customers in southern West Virginia. The

company had requested an increase of \$4.2 million.

Review of the case by the state supreme court had been sought in two separate petitions. One, filed by the company, contended the authorized rate increase was insufficient. The other petition was filed by the cities of Charleston, Huntington, Logan, Nitro, and St. Albans and Cabell-Wayne Consumers, Inc., all of which took the stand that the commission had allowed too much of an increase.



Progress of Regulation

Trends and Topics

Legal Expenses Incurred for Stockholder Benefit

ALLOWABLE operating expenses must be related to public utility operation. Expenses incurred in merchandising business, for example, have been disallowed (57 Public Utilities Fortnightly 417 [March 15, 1956]). Some expenditures have been excluded on the ground that they are nonrecurring. What about legal expenditures primarily for the benefit of stockholders rather than ratepayers? This question has arisen recently in New York.

New York Rulings on Legal Expenses

A New York court upheld the commission's disallowance of \$76,000 spent by New York Water Service Corporation in defense of litigation instituted by dissatisfied stockholders. The court said that although it is a usual practice to allow such expenses arising from the internal management of utility companies, the commission argued that the dispute with stockholders had no important bearing on the management of the utility part of the business but was concerned with a desire on the part of the complaining stockholders to obtain a distribution of the substantial gains which had resulted from the condemnation and sale of the company's property. The court said that while this involved a corporate controversy, it did not involve a corporate controversy relating to utility service but rather to the distribution of nonutility profits (37 PUR3d 442).

The court, in the same case, upheld the commission's disallowance of about \$50,000 legal fees incurred in connection with a note issue plan which the commission had refused to approve. Essentially the company sought to issue notes to retire portions of its stock held by minority stockholders. These stockholders had objected to retention of profits from the sale of assets. The commission had ruled that the proposed note issue and the expenses to which it gave rise related to the manner of distribution of cash from the company accumulated funds and ought not to be passed on to consumers. The court was of the opinion that this issue was correctly determined.

The New York commission, in one case, disallowed as an operating expense

PUBLIC UTILITIES FORTNIGHTLY

amounts spent by Consolidated Edison Company for legal services and filing fees in connection with an attempt to purchase the common stock of a new company emerging from reorganization and consolidation. The proposed acquisition was later abandoned, and, in the opinion of the commission, the expense should not be charged as an operating expense but should be written off against surplus (96 PUR NS 194).

The New York commission, in other cases, has disallowed expenses relating to such matters as title to a parcel of land, admittedly of a nonrecurring nature; charges for legal services and expenses in connection with a refinancing program, and legal expenses relating to issuance of securities (48 PUR NS 25); expense of special services in connection with litigation involving real estate taxes for prior years and other nonrecurring legal expenditures (56 PUR NS 1). A New York court upheld the commission's determination that future operating expenses of a municipal plant should not include the cost of a lawsuit relating to a power contract where it had been proposed to spread this cost over a period of ten years (32 PUR NS 32).

Expenses Disallowed in Other States

Expenses of a private utility applicable to the cost of its contest of an application by a municipality for a certificate of convenience and necessity to compete with the company were not believed by the Arizona commission to be properly allowable to be amortized against ratepayers, although some allowance was made in the expense account for the cost of a rate proceeding developing in the same litigation (2 PUR NS 8).

A water company was not permitted by the California commission to include legal and engineering fees anticipated to be incurred in connection with a petition by a political subdivision to fix the compensation to be paid the company for certain properties. Such costs, said the commission, arise out of the risks of ownership and are chargeable to the owners and not the rate-payers (26 PUR3d 219).

The California commission denied an allowance for engineering and legal fees to enable a water company to defend against condemnation of properties by a city, on the ground that such expense was not encompassed within the area of public utility business operations, but fell more within the realm of risks arising out of ownership of property. These risks primarily concerned shareholders and not ratepayers (22 PUR3d 482).

The expense of a stockholder's action to require a director to recall a sale of stock on the theory that it had been sold for less than value was not allowed by the Indiana commission as an operating expense (PUR1927D 160).

The New Jersey commission disallowed unusual costs incurred by a water and sewer company in connection with a civil action suit for alleged pollution. The record showed no similar expense during the company's history or the history of its predecessor (13 PUR3d 571).

The Ohio commission disallowed fees paid for services on income tax when it did not appear that the services were assignable to current years and the consumer of gas did not derive any benefit therefrom because tax re-

PROGRESS OF REGULATION

coveries were credited to surplus (32 PUR NS 321). The Ohio commission also ruled that legal expenses incident to a civil suit arising from management policies when a gas utility was a subsidiary of a holding company should be excluded as not attributable to the furnishing of service (74 PUR NS 5).

Expense of Tax Litigation Included

Litigation of taxes, in the opinion of the Illinois commission, expressed in the Peoples Gas Light & Coke Company case in 1937, is a proper function for which a public utility company is entitled to an allowance for operating expense when such litigation results in substantial reductions in taxes, which will benefit the consumer. The company had eliminated certain legal fees as being applicable to prior years. Since tax litigation is incurred not in the year in which taxes are incurred but in subsequent years, the commission said it had no knowledge of the expense which the company would incur for the litigation of taxes for the respective periods under review, but it accepted the amount paid during the year 1936 as a reasonable expense for one year's litigation (19 PUR NS 177, 274).

The New Hampshire commission ruled that no adjustment of a water company's estimate for operation and maintenance was required on account of legal expenses in connection with tax litigation where the benefit to the company was of a continuing nature and the expense was to be amortized over a ten-year period. There had been litigation and negotiation resulting in a reduction of assessed valuation of property. Although the expense might be assumed to be nonrecurring, it was presumed that the benefit was of a continuing character (43 PUR NS 321).

Review of Current Cases

Capital Cost Emphasizing Earnings-price Ratios Limits Rate of Return for Gas Pipeline

THE Louisiana commission granted rather less than one-half of a proposed rate increase of 58 per cent requested by United Gas Pipe Line Company applicable to town border sales in southwest Louisiana. The company was authorized to replace separate contract rates with new rate schedules uniformly applicable to customer classes, one schedule being a two-part demand-commodity form for larger customers and another schedule a straight commodity type applicable to smaller customers. The commission disapproved automatic escalation

clauses to cover the increasing costs of purchased gas and severance and similar taxes, in view of the desirability, among other reasons, of maintaining the company's incentive to keep costs as low as possible.

Gas Costs "Rolled In"

In support of increased rates, United, which operates interstate as well as in southwest Louisiana, cited increased costs, particularly the cost of purchased gas. In determining this latter cost as applied to town border service, the commission

"rolled in" field purchases, rather than adopting a zoned system as suggested by the company. This approach seemed appropriate in view of the company's integrated and interconnected system, even though the gas sold in the state jurisdiction was actually purchased by United in the same area. Under the "rolled-in" method the customers in the southwest Louisiana zone would share in all of the costs of acquiring a system gas supply, whether such costs are high or low.

Capital Cost and Allowances

Capital costs are the primary concern in determining reasonable rates, said the commission, because it is the recovery of these costs that meets the requirements laid down by the courts. A capital structure of 60 per cent debt and 40 per cent equity was adopted as reasonable for United. This structure approximated that of United and of its parent corporation on a consolidated basis. The actual cost of debt capital to the parent was 3.74 per cent. The commission refused to make an allowance for possible future increases in debt cost since it was not shown that the issuance of additional debt securities was imminent or even contemplated.

The commission relied chiefly on earnings-price ratios as an indicator of equity investor requirements, rejecting a proposal of a company witness to use for this purpose the percentage relationship between annual earnings and the year-end book equity capital of groups of pipeline companies, distribution utilities, electric utilities, and leading industrial corporations. The percentage relationships of this witness ranged from 9 to 15.3 per cent.

In applying earnings-price ratios, the commission gave the greatest weight to the ratios of the parent corporation since it was closely related to the subsidiary and the market appraisal of its common stock substantially reflected the risks and uncertainties of United, the principal subsidiary. For the five years ending with 1958, the parent's average of earnings-price ratios was nearly 7 per cent, and for 1959 it was somewhat over 7 per cent. The commission thought a cost rate of 7 per cent for equity capital in this case was reasonable. In the absence of evidence of the cost of floating equity capital and of an allowance for market pressure, no allowance for such factors could be made.

A rate of return of 5.5 per cent was considered adequate on a rate base applicable to the town border sales. This figure was substantially less than the 6.75 per cent urged by United. However, the commission allowed for the fact that the company might not actually earn a fair return in the future because of increases in the field cost of gas which could occur after the date used for costing gas purchases. But a proposed allowance in addition to fair rate of return to compensate for the declining purchasing power of the dollar, by means of an upward adjustment in the amount of depreciation in the cost of service, was rejected as a contravention of sound regulatory principles. Furthermore, the commission thought it would be inequitable to give such special protection to the stockholders.

Acquisition Adjustment Disallowed

A proposed allocation of unamortized gas plant acquisition adjustments was excluded from the rate base for the town border service. No part of the acquisition adjustments arose from the purchase of properties in the jurisdictional service area. Nor would any benefit accrue from them to the ratepayers in the area. Moreover, the properties were purchased more than twenty years ago. Re United Gas Pipe Line Co. Docket No. 8111, Order No. 8394, April 5, 1961.

PROGRESS OF REGULATION

Cost of Money and Financial Soundness of Utility Rule Out Rate Increase

OTTER TAIL POWER COMPANY failed to make out a case before the North Dakota commission for a rate increase. The company's present rates, producing a rate of return of 5.425 per cent for the year ending September 30, 1960, were found to be reasonable, and the increase was denied. While the company's witness urged a 6½ per cent return, it was contended that the proposed rates would afford but 5.9 per cent.

No allowance for cash working capital was asked, but materials and supplies were claimed, along with an amount for fuel stocks. However, the company's tax accruals alone exceeded the cash working capital requirement, materials and supplies, and fuel stocks by a considerable sum. Working capital was therefore dis-

allowed.

Rising Expense Not Controlling

The company claimed that increasing expenses necessitated a rate increase. Although the commission recognized that expenses were increasing, it did not necessarily follow that a rate increase was required. It appeared that the company's electric revenues have been increasing faster than its operating expenses. Its net operating revenues have consistently increased, reaching a high of 6.385 per cent for 1959.

The return was lower for the 1960 test year, but during this period substantial investment was added, which would have a natural tendency temporarily to depress the rate of return. Moreover, the company's chief financial officer indicated that the rate of return would increase as a result of continued efficiencies and sales promotion. The commission noted that the company has previously underestimated its revenues and rate of return.

The commission found no evidence that the company has had any difficulty in raising debt money at reasonable cost. It sold \$7 million of bonds in early 1961 at a premium and at an interest rate of 4.78 per cent. In late 1960 a neighboring utility with a higher rating by Moody's issued bonds at a cost of 5.08 per cent.

It was contended that a return of 12.13 per cent should be allowed on equity capital, this being the average earnings of five neighboring electric utilities. But the capital structure of these five utilities was not shown, and, therefore, the commission could not determine the significance of the comparison. Two utilities having the same investment and return on investment, it was pointed out, might reveal different rates of earnings on equity capital because of differences in their debt structure. Debt capital costs less than equity, so that the utility having a higher debt ratio will have more dollars available to service the equity capital. Furthermore, holders of equity capital ordinarily expect a higher return on their investment from the company having a higher debt ratio because the risk is greater.

The company's financial situation did not persuade the commission that existing rates were inadequate. Net revenues and return have improved in recent years. Dividends have increased substantially, as have per share earnings notwithstanding an increase in the number of outstanding shares. The commission observed that the fact that the company has increased surplus substantially while at the same time raising large amounts of new capital on reasonable terms indicates the general financial soundness of operations and that, in the opinion of investors, the return has been adequate. Re Otter Tail Power Co. Case No. 6042, April 10, 1961.

PUBLIC UTILITIES FORTNIGHTLY

Initial Price for Louisiana Gas Sales Held Unsubstantiated

THE federal appeals court for the tenth circuit, in keeping with other recent federal court decisions, overturned a Federal Power Commission order granting an unconditional certificate to Sunray Mid-Continent Oil Company for the sale of natural gas, produced in the Point au Fer field in Louisiana, to Transcontinental Gas Pipe Line Corporation at an initial base price of 21.5 cents per Mcf plus reimbursement for Louisiana taxes of 2.05 cents per Mcf. United Gas Improvement Company, which distributes gas in the Philadelphia area, brought review.

The New York commission intervened in support of United Gas. Sunray and Transco supported the commission.

CATCO Requirements

The controlling issue was whether the granting of the unconditional certificate met the requirements of the CATCO decision (29 PUR3d 70). CATCO involved an initial base rate of 22.4 cents, and the certificate order allowing this rate was set aside on the ground that there was insufficient evidence to support the required finding of public convenience and necessity. While that decision recognized that a "just and reasonable" rate hearing is not required in a § 7 certificate proceeding (as in the present proceeding), the commission must evaluate all factors bearing on the public interest.

Under CATCO, price is a consideration of prime importance. If the proposed price is not in the public interest because it is "out of line," because it may result in a triggering of general price rises, or because it may bring about an increase in the applicant's existing rates by reason of favored-nation clauses or otherwise, the commission may attach such conditions as it considers necessary.

Other Similar Cases

The commission's decision in this case was made after CATCO but before the Supreme Court's summary reversal of the Transco-Seaboard case in which the federal appeals court for the third circuit had affirmed (30 PUR3d 280) the commission's certification of initial prices of 22.4-23.55 cents for gas from southern Louisiana. On evidence similar to that in the instant proceeding, the federal appeals courts for the ninth and District of Columbia circuits found in two other cases (37 PUR3d 345, 37 PUR3d 539) that the commission had failed to meet the requirements of CATCO because the rates were out of line and there was no showing of convenience and necessity. The commission had there used, improperly for comparative purposes, prices which were under review and therefore suspect.

In view of the summary reversal of Transco-Seaboard, the court declared that it would be presumptuous for it to say that the sale here certificated from the same field and at the same price as in Transco-Seaboard is "in line" and in accordance with public convenience and necessity. The price comparisons in the present case were subject to the same criticism as was made in the ninth and District of Columbia circuits.

In an amendment to the commission's Statement of General Policy No. 61-1, 21.5 cents was fixed as a price standard for southern Louisiana, but the commission provided that this price was not "a prejudgment of the cases presently being reconsidered separately by us upon remand from the Supreme Court." In such circumstances, said the court, the price stated does not rise above the suspect class criticized in the decisions of the ninth and District of Columbia circuits.

The record in this case showed a willing seller and a willing buyer arriving at a contract price through arm's-length bargaining. Additionally, it was shown that Transco needed this supply to meet cus-

tomer demand. The court ruled that this was not enough to show public convenience and necessity for the sale. *United Gas Improv. Co. v Federal Power Commission*, 287 F2d 159.

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Two Cannot Serve as Cheaply as One

A single company twice as large was better able to provide service at lower rates than two separate companies each serving half the territory. That was the considered opinion of the Pennsylvania superior court, which affirmed a commission order extending the certificate authority of an existing water company in preference to two rival applications. The commission pointed out, at the outset, that competition within the same territory by noncarrier public utilities, such as water companies, was deleterious and not in the public interest save in rare instances.

The two rival applicants argued that the commission had failed to make sufficient findings of fact. Not so, held the court, since the order especially found that certification of one of the applicants was necessary for the accommodation, convenience, and safety of the public; that the successful applicant had the necessary facilities, managerial ability, and other factors necessary to render the service.

Harmless Error

Next, the unsuccessful applicants claimed the commission erred in finding that during the course of the proceedings the existing water company had constructed an additional well having a productive capacity of approximately 275 gallons per minute. The record did not contain evidence to justify such a finding. There was testimony that the well was planned. This was harmless error, held

the court, because the record showed the existing company was fit and qualified to serve its present territory and the additional territory.

Extent of Competition Discretionary

One of the unsuccessful applicants claimed it could furnish better water service at a lower cost to the territory in question. The court noted that the unsuccessful applicant's proposed rates would be slightly lower than those presently charged by the existing company in the lower consumption blocks, but somewhat higher in the higher consumption blocks. The small difference in rates was held not controlling because the rates were subject to the control of the commission.

The court thought it reasonable to suppose, however, that the cost of operating and maintaining two small adjacent water companies would be much greater than the cost of operating and maintaining one. The time spent on meter reading and billing, the electricity consumed, the bookkeeping, and many other items of overhead, as well as maintenance and operation costs, would be greater for two separate companies than for one. The number of tax and information forms to federal and state offices would double and the work to prepare them would be greatly increased for two companies instead of one.

The extent of competition in any field of public utility service, said the court, is a matter of administrative discretion committed by the legislature to the commission. A water company which is already in the field and ready, willing, and able to make an extension into new territory is entitled to preference over a newcomer. Painter et al. v Pennsylvania Pub. Utility Commission et al. 169 A2d 113.

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Production and Service Costs Considered In Gas Pipeline Rate Case

Pollowing reopening and further hearings, the Federal Power Commission ruled on several issues in a rate case, which extends back to 1954, involving Panhandle Eastern Pipe Line Company. The case deals with three tariff sheets sought to be filed in substitution for others disallowed in a 1954 order.

Cost of Pipeline-produced Gas

The commission held that Panhandle did not sufficiently support a claim for a commodity value allowance for its own produced gas. Panhandle attempted to show that consumers would be saved money by allowing it the commodity value of 10.5 cents per Mcf for its own produced gas rather than the actual cost of 4.16 cents as found by the examiner for the test year. Panhandle argued that if it were not allowed 10.5 cents, it would have to purchase gas at a higher price.

During the 1955-58 refund period involved in this proceeding, Panhandle substantially overproduced its own gas properties in excess of normal production rates in nonprorated fields and in excess of allowables in prorated fields. It contended that it was unable to undertake an additional program of exploration and development during the refund period because its proposed rates were contingent upon commission action. The additional expenditures, for which it requested a commodity value allowance, included the cost of acquiring acreage, drilling wells, and geological and land department expense.

In the City of Detroit case (11 PUR3d

113), the court indicated that if the commission contemplated increasing rates for the purpose of encouraging exploration and development or the ownership of pipeline companies of their own producing facilities; it must see that "the increase is in fact needed, and is no more than is needed, for the purpose." The commission observed that Panhandle's history of exploration and development operations did not show how much was needed to encourage exploration and development. An additional allowance for the produced gas could not be based on a hypothetical program of expansion even if it were shown that such a program was needed. Nor was the company's proposed program of future expansion between 1960 and 1964 a competent basis on which to test rates in effect between 1955 and 1958 and founded on a 1954 test year. Panhandle's customers during the refund period should not be charged with a future expansion program.

While it may be true that the commodity value proposed by Panhandle would effect savings over the prices that the company might have to pay in the market for additional gas, said the commission, the proposed commodity value would cost the consumer more than an allowance made on the cost basis for Panhandle's own supplies of gas.

The commission recognized that the test required by the court in the City of Detroit case is a difficult one in that it contemplates a showing of what is needed above the cost of service in order to encourage exploration and development. A

new approach is necessary for the pipeline producers as well as for independent producers, the commission declared. In this proceeding, however, an area price had not been established and Panhandle had not shown that it should be allowed the commodity price as an additional allowance above the cost of service. The company would, therefore, have to depend on the cost-of-service evidence with adjustments, as a basis for determining an allowance for its own produced gas.

The commission adjusted the examiner's test-year allowance for exploration and development by the average amount actually spent in the test year, the remaining part of 1954, and the subsequent refund period. The commission also increased the rate of return from 53 per cent to 6 per cent as applied to well-mouth properties. As a result of these adjustments, the examiner's allowance of 4.16 cents per Mcf would be increased, though the increased amount would be nowhere near the amount required to encourage a vigorous program of exploration and development. But the record did not support more.

Cost-of-service Adjustments

The commission staff objected to post test-year adjustments to the costs of both Panhandle and Trunkline Gas Company, Panhandle's subsidiary supplier, on the ground that only certain of their additional costs were shown rather than a more complete showing of all operating costs and revenues. Panhandle contended that all changes shown were unrelated to any increase in capacity. The examiner disallowed all post test-year adjustments on the ground that Panhandle's failure to show possible increased revenues led to an assumption that there were increased revenues sufficient to offset any increase in costs.

The commission found for Panhandle

on almost all of the adjustments. They related to increased wages, insurance, pensions, or purchased gas costs. Since, on the basis of a 1954 test year, Panhandle's rates were being fixed for a future period of about four years, the commission felt that adjustments for known changes within a reasonable time after the test year should, in all fairness, be allowed. However, increases in purchased gas costs resulting from spiral escalation clauses which were actuated by Panhandle's increased rates proposed in this case were disallowed. These cost increases did not become effective until 1956 and 1957. To allow these increases "so far down the road after the end of the test period," without determining their revenue effect, the commission observed, would be to introduce the danger of an unrepresentative distortion into the test period.

Tax Matters

Panhandle excepted to the examiner's allowance of no more taxes than were actually payable or deferred, contending that it was the intention of Congress that the benefits of statutory depletion and intangible well-drilling costs should be retained by the company.

The commission noted that, in the El Paso opinion (30 PUR3d 308) it had found that the tax benefits of statutory depletion and intangibles applicable to well-mouth properties represented a return greater than the assumed reasonable return, so that it appeared unnecessary to allow any return in addition to the benefits of the statutory deductions. This view was reversed on appeal (35 PUR3d 257). the court holding that tax savings to which gas companies are entitled should be treated no differently than savings in any other cost of service. In view of this authority, the commission ruled that only taxes payable as a result of the statutory

PUBLIC UTILITIES FORTNIGHTLY

depletion and intangibles should be allowed. Panhandle's tax allowances would be computed, using these permissible deductions, and the rate of return would be treated as a separate question.

The average amount of income tax accruals available for company use for the years 1954 through 1958, amounting to approximately 65 per cent, was deducted from the allowable working capital. The minimum available amount, urged by Panhandle as the proper deduction, was rejected. Re Panhandle Eastern Pipe Line Co. Opinion No. 344, Docket No. G-2506, April 27, 1961.

In a remand (11 PUR3d 113) proceed-

ing in another docket, the commission issued an order, concurrent with the above order, recognizing a rate of return of 6 per cent for Panhandle's well-mouth properties. In establishing 53 per cent in the original order, the commission excluded well-mouth properties and gave a commodity value to the company's produced gas. Since cost-of-service principles were required to be employed for the well-mouth properties, a change in the rate of return was imperative, consistent with the above discussion. Re Panhandle Eastern Pipe Line Co. Opinion No. 269-A, Docket No. G-1116, April 27, 1961.

3

Gas Producer Certificate Condition Properly Fixes Initial Price below Contract Rate

F the Federal Power Commission has authority under the Natural Gas Act to deny a natural gas producer certificate where the proposed initial price is higher than a particular price which the commission feels is warranted by the public convenience and necessity, it follows that the commission can grant the certificate on condition that the lower price be substituted by the producer in its rate schedule, the federal appeals court for the fifth circuit declared. The court affirmed in all respects a commission order which granted producer certificates subject to a price condition of 17.7 cents per Mcf, notwithstanding a contract between the producers and El Paso Natural Gas Company fixing 20 cents with a provision for a subsequent increase.

Producers Protest Conditions

Fourteen producers and the state of California attacked the order. The producers contended that the commission cannot validly impose a condition, in a § 7 proceeding, that an initial price be

filed which is lower than that agreed upon between the parties, where there is a critical need for the gas, and where the proposed price will not result in a triggering of general price increases or an increase in existing rates. They also contended that they should not be required to make refunds, as the commission had ordered, of the difference between the 17.7-cent rate and the 20-cent rate that had been charged under temporary authority, because the conditions in the temporary certificate were so broadly and indefinitely stated as to nullify the condition. Finally, it was urged that interest could not be required on the refunds since the temporary certificate conditions did not expressly provide for interest.

The producers argued that the making of initial rates is left by law to the contracting parties, that the commission's substitution of 17.7 cents amounted to the making of an initial rate which the parties had not agreed on, that the 17.7-cent rate was particularly objectionable because if the producers filed it, they

could never get the 20-cent rate even though the commission should ultimately find 20 cents to be just and reasonable.

Price Conditioning Authority

The commission has the duty to certificate only such sales as are compatible with the public convenience and necessity, said the court. If it is found that the public convenience and necessity do not warrant the granting of a certificate at an initial price above 17.7 cents, and the applicant has contracted for a higher price, the commission has authority to deny the certificate outright. And having this authority, it can grant the certificate on condition that the lower price be substituted by the producer in its rate schedule.

Filing of Rate Increase Not Barred

The court indicated that the power of the commission to condition a certificate is coextensive with its power to reject or deny a certificate, even though this might make it impossible for a producer ever to get its initial price where the commission has conditioned its certificate on the filing of a lower initial price. This follows because the power to reject an application for a certificate completely is harsher than the power to grant it on any reasonable condition. The court intimated, however, that the producers in this case could file for 20 cents immediately after complying with the 17.7-cent condition.

The fact that the commission required the producers to deliver to El Paso at 17.7 cents, despite the producer-pipeline contract for 20 cents, does not amount to a revision of the contract obligation of the parties except to the extent that the producers were denied the right to receive, at least for a limited time, part of the benefits which the parties had agreed

to. Nor does it follow, said the court, that if the producers are able later to show that 20 cents is just and reasonable, the commission would be powerless to approve such a rate merely because of contractual relations between the producers and El Paso.

Refund Condition Upheld

The producers objected to a requirement that they refund with interest the difference between 17.7 cents, found to be proper in the certificate order, and the 20-cent rate collected under prior temporary authority. The order granting temporary certificates provided for the refund of "any amounts in excess of the amount resulting from the rate finally determined to be proper. . . ." The producers claimed this provision was too vague to provide a reasonable standard to permit them to know whether or not to accept temporary authority.

The court noted that the producers had, in fact, accepted temporary certificates with the conditions attached and sought to appeal only after permanent certificates had been granted. The refusal of the commission to grant the temporary certificates without the condition was then an appealable order. The failure of the petitioners to appeal from that order within the statutory time deprived the court of jurisdiction in this proceeding to entertain an appeal on the refund issue.

Further, the court upheld the requirement of 6 per cent interest on the refunds.

Conditional Price Amply Supported

The state of California took the position that there was no basis for a finding of public convenience and necessity for 17.7 cents and argued that no rate in excess of 12.69 cents was warranted on

PUBLIC UTILITIES FORTNIGHTLY

the record. The court found that the record sufficiently supported the commission's finding for 17.7 cents. A § 7 proceeding, it was observed, is not to be equated with a proceeding under § 4 or § 5 to determine just and reasonable rates. The duty of the commission to

give "most careful scrutiny and reasonable reaction to initial price proposals of producers under § 7" may be discharged without the elaborate proofs required in a § 4 or § 5 proceeding. Texaco, Inc. et al. v Federal Power Commission, Nos. 18349, 18354, 18357 et al. April 14, 1961.

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Distant Areas Must Bear Cost of Transporting Natural Gas

THE federal appeals court for the District of Columbia circuit affirmed the Federal Power Commission in rejecting two proposals of Michigan Gas and Electric Company to require gas service from Michigan Wisconsin Pipe Line Company on specified terms.

One proposal suggested that Michigan Wisconsin be required to construct and operate a pipeline from Menominee northwardly to the various city gates of Michigan Gas, and to deliver gas at those points at the rate applicable to all other customers. As an alternative, Michigan Gas offered to construct a line from Menominee to its various city gates and take delivery at Menominee, but at rates lower than the average rate paid by other customers under the pipeline's systemwide rate schedule.

Under the first proposal, Michigan Wisconsin would be required to invest \$4.5 million in a new pipeline. This new line would be many times longer than any the company has built in the past under the so-called ten-cent formula, which is generally applicable to relatively short laterals. Moreover, in order to serve the Upper Peninsula, Michigan Wisconsin must provide additional capacity to its lateral line from Waupaca, Wisconsin, to Menominee. This would cost a further \$2.5 million.

With respect to the second proposal, the commission had held that areas situated at great distance from the source of natural gas must be willing to pay the costs associated with obtaining natural gas service or be satisfied with other fuels which may be less desirable but more economical than natural gas. Although both proposals were rejected, the commission had directed Michigan Wisconsin to deliver gas to Michigan Gas at Menominee to serve the Upper Peninsula distribution systems, and to charge the rate applicable to all customers of the pipeline. Thus, in any event, Michigan Wisconsin was required to bear the cost of enlarging the capacity of the lateral from Waupaca to Menominee, Michigan Gas appealed, charging that unlawful discrimination against consumers in the Upper Peninsula would result.

It is obvious, said the court, that either of the proposals of Michigan Gas would unduly discriminate in its favor and would impose an undue burden upon the other customers of Michigan Wisconsin. Since the commission's decision was adequately supported by the record in this case, and no error or abuse of administrative discretion appeared, the decision had to be affirmed. Michigan Gas & E. Co. v Federal Power Commission, No. 15,592, April 20, 1961.

Deferred Tax Funds Included in Pipeline's Capital In Rate Proceeding

HE Federal Power Commission ruled on rates for Panhandle Eastern Pipe Line Company for the period from March 26, 1960, to July 1, 1960. The company had put increased rates into effect on the former date, subject to refund. New rates reflecting further increases went into effect on the latter date. In this phase of the proceeding, the commission decided only the matter of rate of return and related income taxes and authorized interim rates in place of the first proposed rates, which were found to be excessive. Refunds were ordered as to any revenues for the period in excess of a return of 6.25 per cent.

Tax Fund Allowance and Equity Cost

In computing the cost of capital, the commission included in the company's capital the amounts accumulated in the restricted account for deferred taxes. A net return of 1.5 per cent was attributed to these funds.

A return of 10.47 per cent was allowed on equity capital, despite the company's contention for 11.76 per cent. The commission noted that it has allowed in recent pipeline cases returns ranging between 10.1 and 10.8 per cent. In those cases evidence of market conditions and financial experience was similar to that produced in the present proceeding. The evidence, including earnings-price ratios and return on book value of equity indicated that Panhandle is one of the strongest of the major pipelines. Its stock has steadily advanced in price, and its recent earnings per share have been such as to allow the company to pay out only 54 per cent of net earnings and yet maintain a dividend rate as high as most of the other pipelines. Although Panhandle may have to make refunds in pending rate cases, its financial record demonstrates a continuing strong business position. The commission thought a 10.47 per cent return on equity would be sufficient to maintain the company's financial integrity and enable it to attract new capital for expansion.

The overall rate of return of 6.25 per cent, allowed for the period here under consideration, was based on 52 per cent long-term debt at a cost of 3.55 per cent, 3.5 per cent preferred stock at a cost of 3.99 per cent, 4 per cent accumulated deferred taxes on income at a cost of 1.50 per cent, and 40 per cent common equity at a cost of 10.47 per cent. Re Panhandle Eastern Pipe Line Co. Docket No. G-19780, March 20, 1961.

3

Water District Not Barred from Invading Certificate Holder's Territory

THE Nevada supreme court held that the Las Vegas Valley Water District could supply service in an area certificated to a private company without payment of compensation to the certificate holder and without first obtaining commission authorization.

After examining applicable statutes, the

court reversed an injunction restraining the water district from serving the area. The certificate granted the private company was not exclusive. The statute governing water districts was independent of the statutes governing commission reguiation of utilities. The holder of a nonexclusive franchise or certificate is not

PUBLIC UTILITIES FORTNIGHTLY

entitled to damages or to an injunction preventing competition by the water district. The commission had no statutory authority to control the rates of a water district.

The fact that the private company certificated by the commission had invested a substantial sum in furnishing service to an area it thought it had an exclusive franchise to serve was held not to be a mitigating factor. The wisdom of the legislation governing water districts was a matter beyond the court's concern. Its validity could not be questioned. Las Vegas Valley Water Dist. v Michelas, 360 P2d 1041.

Other Recent Rulings

Telephone Exchange Earnings. The Wisconsin commission stated that the level of earnings at individual exchanges should be given consideration in determining rates to be applied at each exchange so that excessive earnings at some exchanges are not utilized to subsidize inadequate earnings at other exchanges. Re North-West Teleph. Co. 2-U-5475, April 11, 1961.

Reasonableness of Police Action. The New Jersey commission pointed out that the determination of whether action taken by the chief of police to have telephone service to a subscriber discontinued was reasonable and proper, upon the information available to him, falls within the jurisdiction of the courts, not the commission. Kucharski et al. v New Jersey Bell Teleph. Co. Docket No. 612-110, April 13, 1961.

Factors in Train Discontinuance. The New Jersey commission stated that, in train discontinuance cases, it had to give primary consideration to public convenience and necessity and secondary consideration to the financial results of the operation, and had also to consider the alternate public transportation service available. Re Reading Co. Docket No. 613-204, April 13, 1961.

Adequate Existing Service. The Utah commission denied an application of Railway Express Agency for a certificate to operate as a common motor carrier where adequate service was being rendered by presently certificated carriers. Re Railway Express Agency, Inc. Case No. 4971, April 12, 1961.

Telephone Company Return. The Ohio commission considered a return of 3.33 per cent on a telephone company's reproduction cost new less depreciation rate base reasonable. Re Fayetteville Teleph. Co. No. 29,495, April 13, 1961.

Municipal Plant Return. The Wisconsin commission considered a return of 5.5 per cent on a municipal water plant's net book value rate base reasonable. Re Village of Whitefish Bay, 2-U-5366, April 17, 1961.

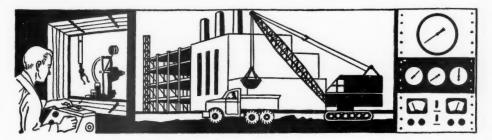
Rate Case Expense. The Connecticut commission stated that, notwithstanding a utility's desire to present a thorough, detailed case in an attempt to justify a requested rate increase, the magnitude of regulatory expenses has to be reasonable in relation to the size and financial resources of the company. Re Woodbury Water Co. Docket No. 10002, April 28, 1961.

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Industrial Progress



United Nuclear Acquires Assets And Business of Three Established Companies

NITED Nuclear Corporation has aquired the assets and business of birce established companies long active in the nuclear industry, Mr. William C. Foster, president and chairman of United Nuclear announced exently. Acquired in exchange for formon and preferred stock of finited Nuclear were the Nuclear fuels Operation of Olin Mathieson themical Corporation, the Nuclear Works and Nuclear Development for portain of America.

While United Nuclear is the newest major company in the nuclear industry, the three divisions established have experience and talents which have been among the most extensive and widely known since the opening if the atomic age in World War II. United Nuclear's Fuels Division, the largest commercial producer of muclear cores in the United States, will continue under the direction of Edward Hartshorne, a United Nuclear vice president, utilizing its custom designed and equipped plants at New Haven and Montville, Conn.

United Nuclear's Development Dission, known throughout the world by its NDA trademark, was the first independent commercial nuclear rearch and engineering firm established after World War II. The Development Division, which will consinue under the direction of NDA's founder, John R. Menke, now a United Nuclear vice president, has leveloped, designed and fabricated dvanced reactors, nuclear fuels and components at its two plants in White Pkins, N. Y. and the NDA Pawling Laboratories near Pawling, N. Y.

United Nuclear's Chemicals Divison, formerly part of Mallinckrodt, was the world's first commercial profucer of enriched nuclear fuel materials. Operating in modern facilities of Hematite, Missouri, under the continued direction of Dr. Charles Harrington, now a United Nuclear vice president, the Chemicals Division has supplied the enriched uranium fuel for many of the nation's most important civilian and military power reactors.

Dravo to Construct 125,000 KW Unit for Columbus & Southern Ohio

GENERATING capability of a central Ohio electric power station will be increased by 50 per cent by expanded facilities now under construction.

Dravo Corporation, Pittsburgh, has been awarded the general construction contract for the installation of a third 125,000 kilowatt generating unit at the Columbus and Southern Ohio Electric Company's Conesville station. The station is located on the Muskingum river, about six miles south of Coshocton, Ohio.

Black and Veatch, consulting engineers of Kansas City, Missouri, are the design engineers working in close co-ordination with the Columbus and Southern Ohio Electric Company.

The contract calls for erecting and setting the new turbine-generator; extending the building housing the condenser gallery, controls and operating areas; and installing the boiler feed pumps, air compressors, service condenser, and all piping, auxiliary equipment and electrical work.

Dravo also will enlarge the present river intake and discharge facilities.

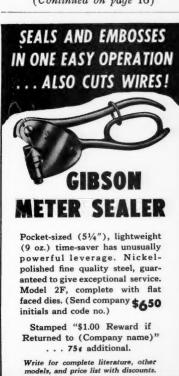
The installation being constructed is of a semi-outdoor design, boiler and turbine generator being completely so. The rating of the boiler is nominally 1,000,000 pounds of steam per hour at 1450 psig at 1000 degrees Fahrenheit initial superheat with a reheat to 1000 degrees Fahrenheit.

Conesville generating station is one

of four power plants operated by Columbus and Southern Ohio Electric Company serving 22 counties in central and southern Ohio. The new unit is scheduled to go in service in the fall of 1962.

Management Seminars On Computers Scheduled by Philco Corporation

PHILCO Corporation's Computer Division has scheduled a series of computer seminars for management groups in June and July based on the (Continued on page 16)



A. C. GIBSON CO., INC.

70 OAK ST. BUFFALO 5, N.Y.

capabilities of the Philco 2000 electronic data processing systems.

The June sessions are scheduled from June 26th to June 30th and and the July meetings are scheduled from July 17th to July 21st. All meetings will be held in the Computer Division facility at 3900 Welsh Road, Willow Grove, Pennsylvania.

The courses are designed primarily for EDP evaluation committees, management consultants and middle management personnel whose departments will be involved in electronic data processing operations. Included in the agenda is an introduction to large scale data processing systems; programming; various applications for large scale computers, and organization for the installation and efficient use of an electronic data processing system.

For enrollment write to C. A. Leventhal, manager of customer education, Philco Computer Division.

New Data System for Power Utilities Announced by MSI

A NEW Series 7000 Data Alarm Scanning, Telemetering, and Recording System for electric power utilities has been announced by Monitor Systems, Inc., a subsidiary of Epsco, Incorporated.

The new system is of modular "building block" design throughout and utilizes standard field-proven components for maximum reliability, economy, and expandability. The system automatically cans and measures voltages, demand, wattage, var, and temperature quantities from potential transformers, punch type demand meters, thermoverters and thermohm units located at remote sub-stations, converts this information into digital form, and telemeters it to a Central Control Station where it is recorded by electric typewriter on preprinted log sheets. On automatic operation. measurement and transmission of data is initiated in a predetermined sequence by a digital timing clock.

Measurement and transmission may be initiated manually at any time from either the Central Recording Station, or from any of the remote sub-stations. After digitally logging real time, the Series 7000 system automatically checks itself by means of a standard input signal stable to plus or minus 0.05 per cent. Any failure of the telemetering system at the transmitting point, or failure of a leased line channel, results in a continuous alarm at the Central Recording Station. The Series 7000 system is suitable for alarm scanning, conversion, telemetering, and digital recording of any variable reducible to voltage form and can handle any number of sub-stations.

For more information, write Monitor Systems, Inc., Department 15, Fort Washington Industrial Park, Fort Washington, Pennsylvania.

NCR Announces Major **Expansion of Marketing Facilities** For Electronic Data Processing Systems

A MAJOR expansion of marketing facilities for NCR electronic data processing systems is announced by The National Cash Register Company.

Robert S. Oelman, NCR president, said the expansion would result in coast-to-coast coverage of business, industry and government in the marketing of NCR's 304 electronic data processing system and the recently announced 315 system which features the new NCR Card Random Access Memory (CRAM).

The broadened marketing program will give the company local representation by computer specialists in approximately 60 major cities by the end of the year. In addition, 950 NCR accounting machine representatives will receive intensive training in the company's EDP systems.

Under the program eight regional offices have been established-in New York, Chicago, Los Angeles, Philadelphia, Dallas, Atlanta, Hartford and Dayton. These will direct computer marketing activities in the 240 cities in which NCR has branch sales offices.

Mr. Oelman said the company has just completed a new EDP headquarters building in Dayton which houses administrative and supporting personnel for the marketing of electronic systems and services. This facility also provides for various customer services, such as management seminars, programming seminars and program research. The Dayton EDP group is organized into five major fields-retailing; banking; industry; state, county and local government and utilities, and insurance. The Federal Government is covered through a Washington, D. C., office.

"The increase in our computer sales organization and expansion of

its physical facilities have been ne cessitated by the substantial growth of this market during the past year, Mr. Oelman said. "We are antic pating a corresponding growth dur if mo ing 1961 and in subsequent years."

Installation of NCR 304 system began early last year and the firs 315 systems are scheduled to go into operation early in 1962, the NCI president said.

During 1960 the company also es tablished data processing centerfive major cities. Three of these New York, Dayton and Los Angile —are using 304 computers. Smalle Fer de centers equipped with the NCR 397--Squ computer were opened in New York Chicago and Houston. Additional computer centers are scheduled to b opened.

New Research Laboratory Dedicated

THE newly modernized John Blizard Research Laboratory, Carteret, New Jersey, was dedicated recently by Mr. L. Foster Wheeler Corporation, it was announced by John E. Kenney, presi

The laboratory, currently under the direction of Ernest L. Daman, i named after John Blizard in recognition of his pioneering efforts in the industry. During his 30 years as the Corporation's head of research, he directed the study of radiant super heaters, pulverizers, steam generators and other equipment.

Mr. Blizard was recipient of the NDUS 1958 Percy Nicholls Award for achievements in the field of solid ale sy fuels, and in 1959 the American Society of Mechanical Engineers honored the I him with their highest award for ener service to the Society, the industry ontrand the public. Mr. Blizard has attended in a service to the society. thored numerous technical papers.

New Square D Substations Feature 500 KVA Capacity, Compact Size

SQUARE D Company announces a han 30 new Power-Zone package unit sub-yetem station which combines compact size ach ins and easy handling with capacities pecial from 75 to 500 3-phase KVA, with The primary voltages up to 4800 volts and 6ARDI secondary voltages up to 600 voles. menitor A forced-air cooling system with highlif steam temperature alarm is available to in-lover s crease KVA capacity by one-third. Extremely versatile construction he fund

PUBLIC UTILITIES FORTNIGHTLY-JUNE 22, 1961

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NDUSTRIAL PROGRESS-(Continued)

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e NC Quiet operation is emphasized. and levels are considerably below also es EMA specifications, making the nters i istation suitable for areas where nsformer noise would be disturb-

Smalle for details, write for Bulletin SD-CR 39 7--Square D Company, Mercer v York ad, Lexington, Kentucky.

d to becomes & Betts Appointment

SLIE S. LYNCH, JR. has been pointed executive engineer of the ility Products Division of The nomas & Betts Co. This was anunced by N. J. MacDonald, presi-Blizare

tly b. Mr. Lynch, who has been associ-it wa cd with T&B since 1958, will be presi sponsible for the engineering and velopment of high voltage fittings der the connectors. T&B manufactures tomplete line of connectors, fittings of raceway accessories. Before joining the gineer with Reaction Motors.

G-E Announces Standard Computer Packaged for "Off-the-Shelf" Sale

of the NDUSTRY'S first standard comsolid left system packaged for 'off-the-solid left' sale to electric power generat-Socisoci g stations" was announced recently I for eneral Electric Company's Industry ustry ontrol Department, Phoenix, Ari-

Raymond C. Berendsen, general lanager, said the new system can be depted for use in any power genrating station with only a minimum f special programming. Thus, inta lation time can be reduced to less es a lan 30 days. Previously, a computer sub-vetem had to be "tailor made" for size ach installation, requiring months of ities pecial programming efforts.

The new computer, known as the and GARDE system, is designed for ols. menitoring, logging, and processing night steam plant operational data in in-lover stations. Name of the system vas selected from an abbreviation of tion he functions; Gathers data, Alarms,

(Continued on page 18)

of an offer to buy any of these securities. The offering is made only by the Prospectus.

NEW ISSUE

900,000 Shares

Public Service Electric and Gas Company

Common Stock

(without nominal or par value)

Price \$52.25 per Share



June 7, 1961

Copies of the Prospectus may be obtained in any State in which this announcement is circulated from only such of the undersigned or other dealers or brokers as may lawfully offer these securities in such State.

Merrill Lynch, Pierce, Fenner & Smith

Blyth & Co., Inc.

The First Boston Corporation

Harriman Ripley & Co.

Hornblower & Weeks

Kidder, Peabody & Co.

Lehman Brothers

Paine, Webber, Jackson & Curtis

White, Weld & Co.

Dean Witter & Co.

A. C. Allyn and Company

American Securities Corporation

Hemphill, Noyes & Co. Reynolds & Co., Inc. Wertheim & Co. Bache & Co.

Bear, Stearns & Co.

A. G. Becker & Co.

Clark, Dodge & Co.

Francis I. duPont & Co.

Goodbody & Co.

Hallgarten & Co.

F. S. Moseley & Co.

R. W. Pressprich & Co.

Shearson, Hammill & Co.

G. H. Walker & Co.

This announcement is under no circumstances to be construed as an offer to sell or as a solicitation of an offer to buy any of these securities. The offering is made only by the Prospectus.

NEW ISSUE

June 2, 1961

\$30,000,000 The Columbia Gas System, Inc.

51/8 % Debentures, Series Due June 1986

Dated June 1, 1961

Due June 1, 1986

Price 100.35% and accrued interest

Copies of the Prospectus may be obtained in any State in which this announcement is circulated from only such of the undersigned or other deders or brokers as may lawfully offer these securities in such State.

Merrill Lynch, Pierce, Fenner & Smith

White, Weld & Co.

Goldman, Sachs & Co.

Salomon Brothers & Hutzler

Francis I. duPont & Co.

Equitable Securities Corporation

Hayden, Stone & Co.

Hornblower & Weeks

Ladenburg, Thalmann & Co.

A. C. Allyn and Company Incorporated

Hemphill, Noyes & Co.

E. F. Hutton & Co.

Incorporated

UNE 22, 1961-PUBLIC UTILITIES FORTNIGHTLY

Reports, Displays and Evaluates.

The GARDE system is designed around General Electric's fully transistorized 312 digital process control computer. It comprises the central computer with 24,000-word drum memory, expandable to 52,000 words; operator's control panel; various electric typewriters for logging data and preparing instructions; and a builtin program for routine calculating and checking of turbine-generator operations.

Power Circuit Breaker "Travelling Showroom" Now Touring The Nation

A 35-foot, air-conditioned displayon-wheels, featuring operational power circuit breakers and associated equipment, has begun a one-year, cross-country tour for I-T-E Power Circuit Breaker Division, visiting utilities and industrial users of this equipment.

The completely self-contained mo-

bile showroom is divided into thr areas. In one area, a single tank 34 KV Trend-Line Breaker operates exposed. In another section, a 14 88,014,0 KV Trend-Line Breaker operates Apr 1 36 full speed, also with all internal par p. ayle exposed for easy viewing. In a this laci tites area, the unique I-T-E-KOOL-AR The latest the supposed for the second section of the latest trends are as the unique I-T-E-KOOL-AR. The latest trends are a second section of the latest trends are a section of the late interrupter and other compone parts are displayed.

The display can comfortably a nec ssar commodate from 7 to 12 guests at aller for time. Because of its mobility thribation showroom can literally be wheeled text endito the customer's front door, wherein hewlupon I-T-E trained personnel correpaced duct a planned presentation of the me

various equipment.

Further information, including the Lxpa scheduled date the display will be i will cos any particular city, can be obtaine wil be t by contacting any of the local I-T-In the district offices.

This announcement is neither an offer to sell nor a solicitation of an offer to buy any of these Debentures. The offer is made only by the Prospectus.

\$250,000,000

American Telephone and Telegraph Company

Thirty-Seven Year 43/4% Debentures

Dated June 1, 1961

Interest payable June 1 and December 1 in New York City

Price 101.225% and Accrued Interest

Copies of the Prospectus may be obtained in any State from only such of the undersigned as may legally offer these Debentures in compliance with the securities laws of such State.

MORGAN STANLEY & CO.

BLYTH & CO., INC. GLORE, FORGAN & CO.

GOLDMAN, SACHS & CO.

HARRIMAN RIPLEY & CO. KIDDER, PEABODY & CO. LAZARD FRERES & CO.

LEHMAN BROTHERS

SMITH, BARNEY & CO.

STONE & WEBSTER SECURITIES CORPORATION

WHITE, WELD & CO.

A. C. ALLYN AND COMPANY Incorporated

A. G. BECKER & CO. Incorporated DREXEL & CO.

HEMPHILL, NOYES & CO. HORNBLOWER & WEEKS

W. E. HUTTON & CO.

LEE HIGGINSON CORPORATION

F. S. MOSELEY & CO.

PAINE, WEBBER, JACKSON & CURTIS

DEAN WITTER & CO.

June 7, 1961.

Studebaker Diesel Trucks

MEDIUM duty trucks and tractor substation with assembly installed diesel engine Expa are being manufactured for the firsystem time in the United States by th Public

Studebaker-Packard Corporation. Decause In making the announcement, thopening company stated that with constant Experising operating costs in truck opera \$230,00 tions, the new Studebaker mode Green in the studebaker mode of the diesel's economical features in the of old weight classifications. As a new cor cept in transport vehicles, they pro vide an exceptionally rugged chassi and drive line for maximum per formance of the efficient power plan CLARI

Studebaker Diesels are rated anc., ha 19,500 and 23,000 pounds gross ve schedule hicle weight, and 35,000 and 41,00 electric pounds gross combination weight year in Four wheelbases are available, ranginto a c ing from 131 to 195 inches.

ing from 131 to 195 inches.

The power plants are Series 5 ble res four-cylinder, two cycle engine urbo-g manufactured by General Motor neorpo Detroit Diesel Division. Introduce levelop in 1958, the Series 53 diesels havelosed of been performance proved in hundred oration of typical medium truck application of Defe which were conversions from gaso of Engline to diesel power. This include sion, both over-the-road and pickup and Design delivery operations.

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UNE 22,

INDUSTRIAL PROGRESS—(Continued)

Wisconsin Public Service Plans \$8,014,000 Program

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erates WIS CONSIN Public Service Corporation will spend all par WIS CONSIN Public Service Corporation will spend all par 88,0 4,000 for new construction in the year ending erates Apr I 30, 1962, it was announced recently by Harold par P. aylor, president. The expansion program includes a thi facilities to serve new customers and to insure conditable in a thing of the program of the bringing of natural gas to Brillion, Reedsville,

mpone The bringing of natural gas to Brillion, Reedsville, and Valders will cost \$571,000, with completion of the ably a necessary transmission and distribution mains schedests at the for August. Additions to existing natural gas distity the tribution systems will cost more than \$2 million. This cold a xx enditure will consist chiefly of gas main extensions where in newly developed business and residential areas and tell correp accement of mains in advance of the time they will not the orne overloaded by steadily increasing use of natand Valders will cost \$571,000, with completion of the

ling the Lxpansion of the electric power transmission system Il be will cost \$930,000. The greatest share of this amount btainewill be required to continue the program already started IT-in he Wausau area to increase the capacity of the ransmission network supplying the upper Wisconsin River Valley area.

Expenditures for new substations and for added tractor substation equipment are estimated to be \$566,000.

engine Expanding and improving the electric distribution he firsystem will require \$2,530,000. Every city served by by th Public Service will share in this additional investment ion. because of the growing demand for electricity and the nt, thopening of new residential areas.

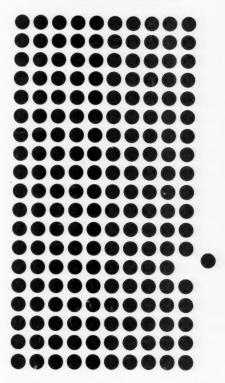
stantle Expenditures for land and buildings will amount to opera \$230,000, consisting mainly of garage additions in mode Green Bay, Stevens Point, and Rhinelander. The ador thition of new automotive equipment and replacement the of old vehicles will require an outlay of \$360,000.

Clark Turbine-Compressor for Mobile Nuclear Power Plant Goes On Test

plan CLARK Bros. Co., Division of Dresser Industries, ted dinc., has announced that its new turbine-compressor ss ve cheduled for use in the world's first mobile nuclear-41.00 electric power plant has reached the testing stage. Over reight year in development, the turbine will be incorporated rang no a compact, power conversion skid which may then be operated in conjunction with the Army ML-1 port-ble reactor skid, as a closed cycle, gas cooled reactor gine urbo-generating system. The Clark turbine may also be lotor norporated with a fossil fueled, closed-cycle heater to duce levelop data on the operational characteristics of the havelessed cycle gas turbine systems. Aerojet General Cordred poration is developing the ML-1 for the Department attended to the Defense under contracts with the U. S. Army Corps gasopf Engineers and the U. S. Atomic Energy Commislude sion.

Designed to generate 330 kilowatts, this prototype power plant is being developed to meet several imporant military requirements. It will be capable of transport by truck, air, rail, barge or sled. It will be operational in any climate, any location, and will deliver a ed output at ambient temperatures from 100°F to -55°F. The ML-1 can be set up in 12 hours, reocated in 24 hours after shutdown, and can operate 10,000 hours without refueling or overhaul.

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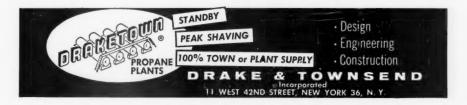
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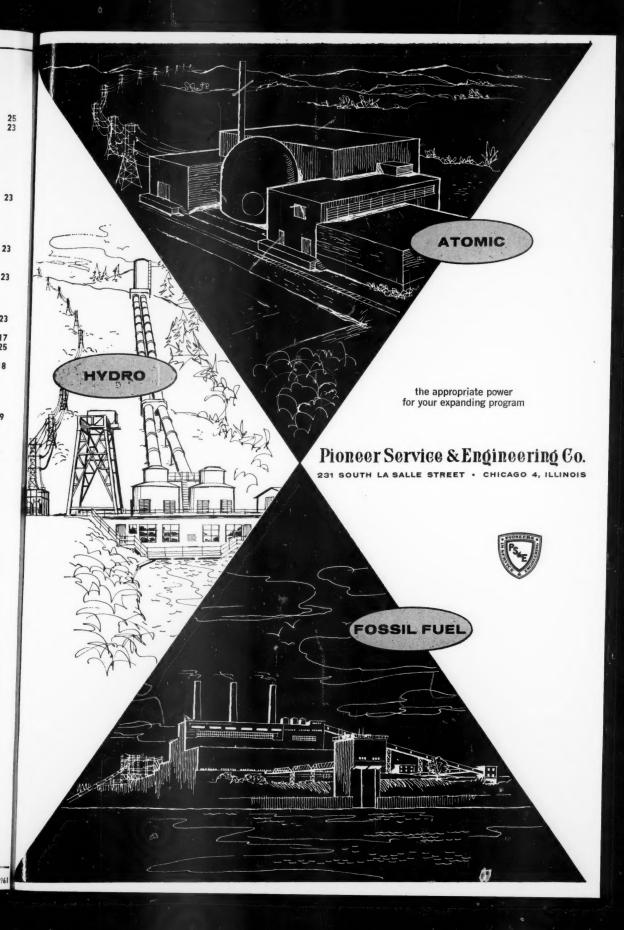
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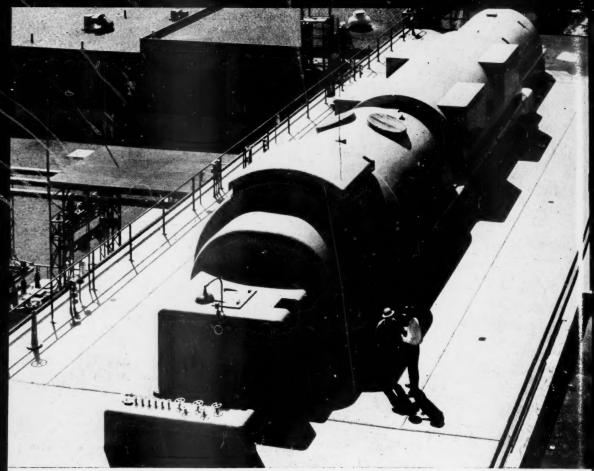
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INDEX TO ADVERTISERS

A	J	
***************************************	Jackson & Moreland, Inc., Engineers	25
*Allen & Company *Allis-Chalmers Manufacturing Company	Jensen, Bowen & Farrell, Engineers	23
American Appraisal Company, The		
*American Motors Corporation	K	
*Analysts Journal, The		
	*Kellogg, M. W., Company, The	
	Kidder, Peabody & Company *Kuhn Loeb & Company	
•	Kuljian Corporation, The	23
Bechtel Corporation	The state of the s	23
Black & Veatch, Consulting Engineers		
*Blyth & Company, Inc.	L	
Boni, Watkins, Jason & Co., Inc	*Langley, W. C. & Co	
Burns & McDonnell, Engineers	Leffler, William S., Engineers Associated	23
2010	*Lehman Brothers	
	*Loeb (Carl M.) Rhoades & Co.	22
С	Lougee, N. A., & Company	23
Carter, Earl L., Consulting Engineer		
Coffin & Richardson, Inc	M	
Columbia Gas System, Inc., The	Main, Chas. T., Inc., Engineers	23
*Combustion Engineering, Inc.	*McCulloch Corporation	
Commonwealth Associates, Inc	Merrill Lynch, Pierce, Fenner & Smith, Inc.	17
Commonwealth Services, Inc	Miner & Miner, Consulting Engineers	25
Consolidated Gas and Services Company	*Moloney Electric Company Morgan Stanley & Company	10
	wordan Statiley & Company	18
D		
Dames & Moore	N	
Day & Zimmermann, Inc., Engineers	National Association of Railroad & Utilities	
Drake & Townsend, Inc	Commission	9
E	0	
	*0	
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Ebasco Services Incorporated *Electro-Motive Division, General Motors		
Empire Gas Engineering Company	P	
Empire Our Engineering Company	Diamon Coming & Facination Community	
	Pioneer Service & Engineering Company Inside Back Cover,	22
F	*Pole Sprayers, Inc.	
*First Boston Corporation, The		
Ford Bacon & Davis, Inc., Engineers		
Foster Associates, Inc	•	
Francisco & Jacobus	Ransom, R. A., Company, Inc.	23
	Recording & Statistical Corporation	7
G		
	5	
Gannett Fleming Corddry and Carpenter, Inc 25	Sanderson & Porter, Engineers	24
General Electric CompanyOutside Back Cover		24
Gibbs & Hill, Inc., Consulting Engineers		25
Gilbert Associates, Inc., Engineers	*Smith Barney & Company	
Gilman, W. C., & Company, Engineers		24
Glore, Forgan & Company	Stone and Webster Engineering Corporation *Stone & Webster Service Corporation	24
		25
н	,,	
n	U	
*Halsey, Stuart & Company, Inc		
*Harriman, Ripley & Company		24
Harza Engineering Company	*United States Motors Corporation	
Hoosier Engineering Company	w	
	W	
1	*Westinghouse Electric Corporation	
	*White, Weld & Co Whitman, Requardt and Associates	
*International Business Machines Corp.	Williams A. W. Inspection Co. 1	24
Irving Trust Company	Williams, A. W., Inspection Co., Inc	25
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